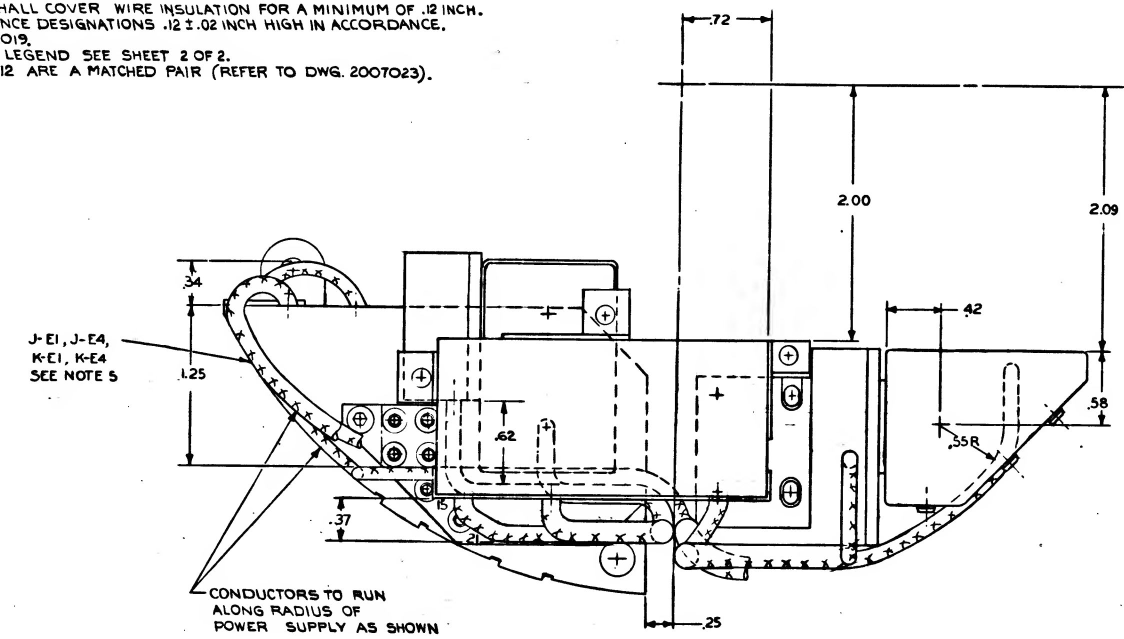
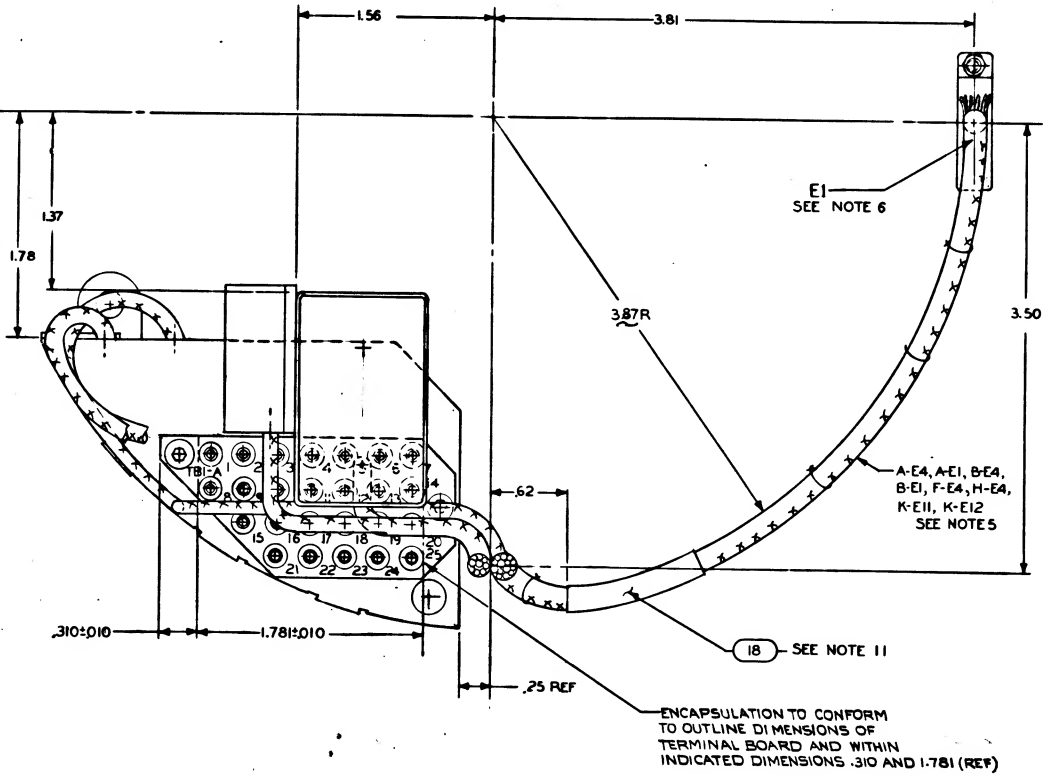
2012509 A

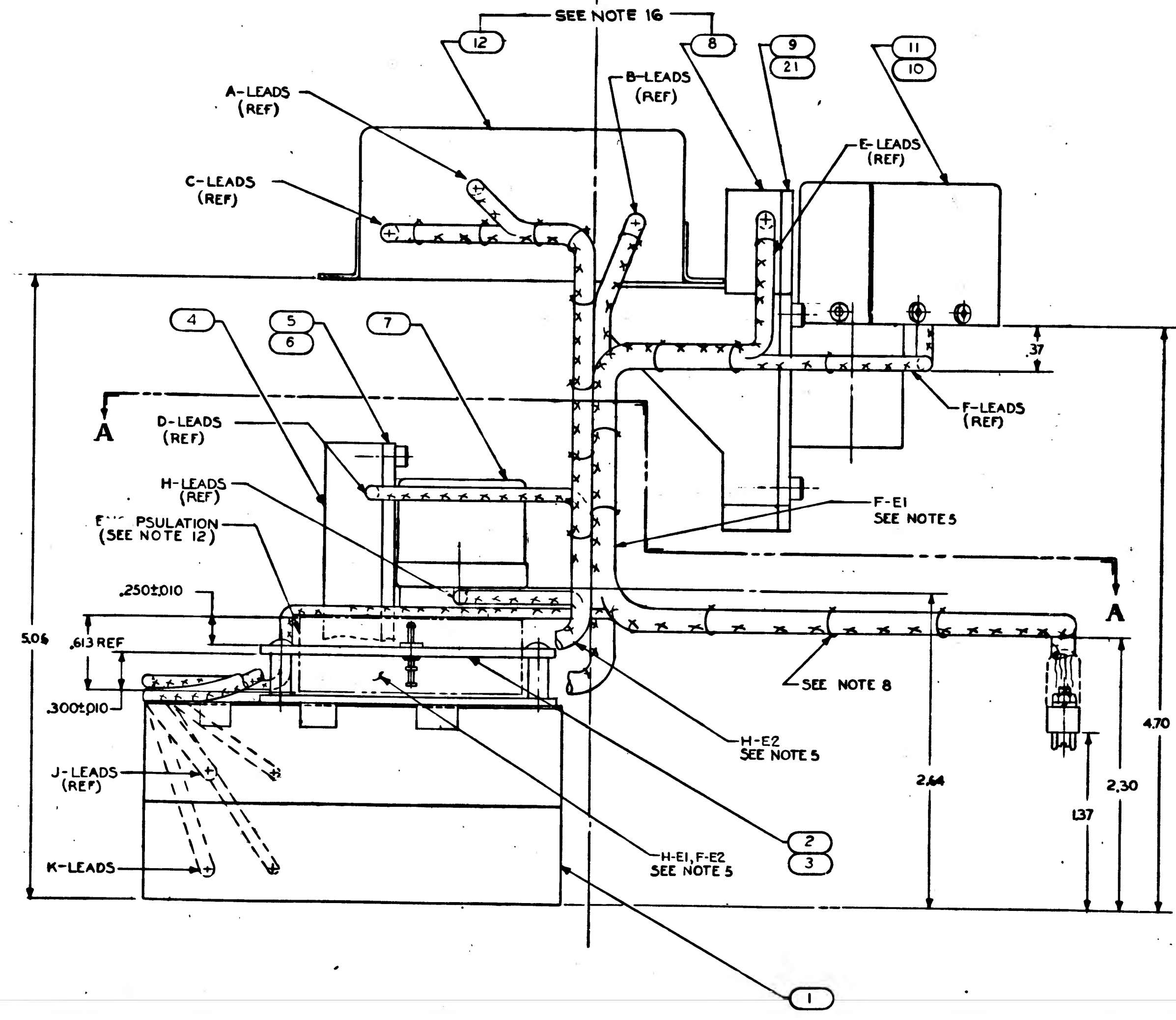
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023		

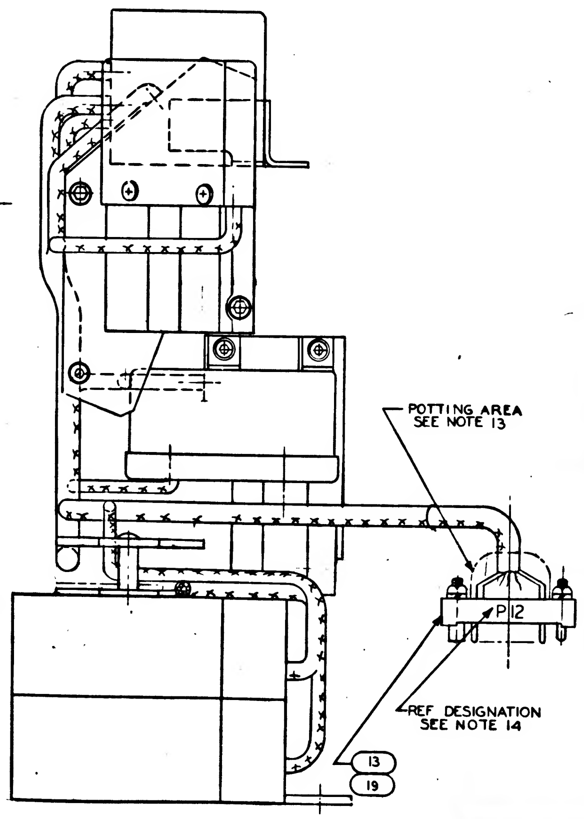
REVISIONS

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012391.
3. TWIST CONDUCTORS IN ACCORDANCE WITH ND1002032.
4. APPLY ITEMS ⑱ AND ⑲ TO LEADS.
5. TERMINATE SHIELDED WIRES, USING ITEM ⑰, IN ACCORDANCE WITH ND1002071
6. E1 POINT TO BE A SPLICE, USING ITEM ⑳, IN ACCORDANCE WITH ND1002032 APPROXIMATE LOCATION OF E-POINT SHOWN ON HARNESS.
7. SOLDER CONDUCTORS IN ACCORDANCE WITH ND1002071.
8. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.
9. PERFORM CONTINUITY CHECK.
10. PLACE ITEM ⑲ OVER CONTACTS AND LEADS AND SHRINK.
11. SHRINK ITEM ⑱ AND IDENTIFY ASSEMBLY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.
12. ENCAPSULATE TERMINAL BOARD, TO DIMENSIONS SHOWN, IN ACCORDANCE WITH ND1002240, METHOD A.
13. POT IN ACCORDANCE WITH ND1002240.
    A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION.
    B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH.
14. MARK REFERENCE DESIGNATIONS .12 ± .02 INCH HIGH IN ACCORDANCE. WITH ND1002019.
15. FOR WIRING LEGEND SEE SHEET 2 OF 2.
16. ITEMS 8 AND 12 ARE A MATCHED PAIR (REFER TO DWG. 2007023).









ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
24	1	*	1010708-5			WIRE MODIFIED, INSULATED, SOLID COPPER (6" LG)			
23	1	*	1010416-7			WIRE, ELECTRICAL, STRANDED, INSULATED			
22	1	*	1010416-5			WIRE, ELECTRICAL, STRANDED, INSULATED			
21	3		1011625-28	74455151028		SCREW CAP HEX, SOC HD, SELF-LOCKING			
20	1	*	1010490-114			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
19	15	*	1010490-058			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
18	1	*	1010490-278			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
17	8	*	1010402-1			SLEEVE, SOLDER, ELECT, COND. INSUL, HEAT SHRINK.			
16	1	*	1010416-1			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
15	1	*	1010416-3			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
14	1	*	1010416-10			WIRE, ELECTRICAL, STRANDED, INSULATED			
13	1	*	1011740-2			CONNECTOR, ELECTRICAL RECTANGULAR			
12	1		2007023			TUNING FORK ASSY TRACKER AND PHOTOMETER			
11	1		2007024			HEAD ELECTRONICS ASSY (TRACKER)			
10	2		NAS1352C04LL4	74455157013		SCREW, CAP, HEX SOC HD SELF-LOCKING			
9	1		2012483	85386911000		PHOTOMULTIPLIER HOUSING AND LENS ASSY (S.T)			
8	1	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
7	1		2007025			HEAD. ELECTRONICS ASSEMBLY (PHOTOMETER)			
6	3		NAS1352C03LL4	74455157009		SCREW, CAP, HEX SOC HD SELF-LOCKING			
5	1		2012481	85386910990		PHOTOMULTIPLIER HOUSING AND LENS ASSY (H.S.)			
4	1		2012518	85386911300		RESONATOR, TUNING FORK AND FIELD STOP, ASSY OF			
3	2	*	1010618-13			SCREW, BUTTON HEAD SELF-LOCKING, SOCKET HEX			
2	1		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
1	1		2012516	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± .12 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070
DRAWN [illegible] DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL [illegible] 2-17-65
APPROVAL [illegible] 2-15-65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS.
HARNESS ASSY OF

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2012509 A

REVISIONS ~~TDRR~~ 16658				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023	7/15/65	wk

NOTES:
SEE SHEET 1 OF 2.

WIRING LEGEND

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
TUNING FORK ASSY-TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	RED	A-E5		TB1-B7	8
			E3	RED	A-E3		TB1-B6	
			E7	RED	A-E7		TB1-B5	8
			E2	BLACK	A-E2		TB1-B19	
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-K	
		14		WHITE	A-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	A-E1		P12-H	
		14		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	RED	B-E5		TB1-B23	8
			E3	RED	B-E3		TB1-B24	
			E7	RED	B-E7		TB1-B25	8
			E2	BLACK	B-E2		TB1-B22	
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-C	
		14		WHITE	B-E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	B-E1		P12-A	
		14		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	RED	C-E2		TB1-B4	8
			E4	RED	C-E4		TB1-B11	
			E5	RED	C-E5		TB1-B16	8
			E3	BLACK	C-E3		TB1-B17	
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG.-E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
HEAD ELECTRONICS ASSY (TRACKER) 2007024 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		14		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		14		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		P12-D	
			E4	WHITE	F-E4		P12-F	
		14		WHITE	F-E4 SHIELD		A-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		14		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		14		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		P12-T	
			E4	WHITE	H-E4		P12-V	
		14		WHITE	H-E4 SHIELD		E1	
H V POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030	HV POWER SUPPLY ASSY (TRACKER) 2007032 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		14		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		14		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	8
			E5	BLACK	K-E5		TB1-B18	
			E11	WHITE	K-E11		P12-N	
		14		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		14		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWER SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		14		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		14		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		14		WHITE	TB1-A21	E1	P12-U	
		15		RED	TB1-A14		P12-W	8
		16		BLACK	TB1-A20		P12-X	
		22		YELLOW	TB1-A18		P12-S	
		23		BLUE	TB1-A18		P12-L	
		24	**	BLUE	TB1-B12		TB1-B13	
		24	**	BLUE	TB1-B13		TB1-B14	
		24	**	BLUE	TB1-B22		TB1-B17	
		24	**	BLUE	TB1-B17		TB1-B18	
		24	**	BLUE	TB1-B1		TB1-B8	
		24		BLUE	TB1-B8		TB1-B22	

** -TO FACILITATE ASSEMBLY INSULATION MAY BE STRIPPED FROM WIRE.

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070

DRAWN E. DRAPALA DATE 2-8-65
CHECKED 2-15-65
APPROVAL 2-15
APPROVAL 2-15-65
NASA APPROVAL
MIT APPROVAL 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS,
HARNESS ASSY OF

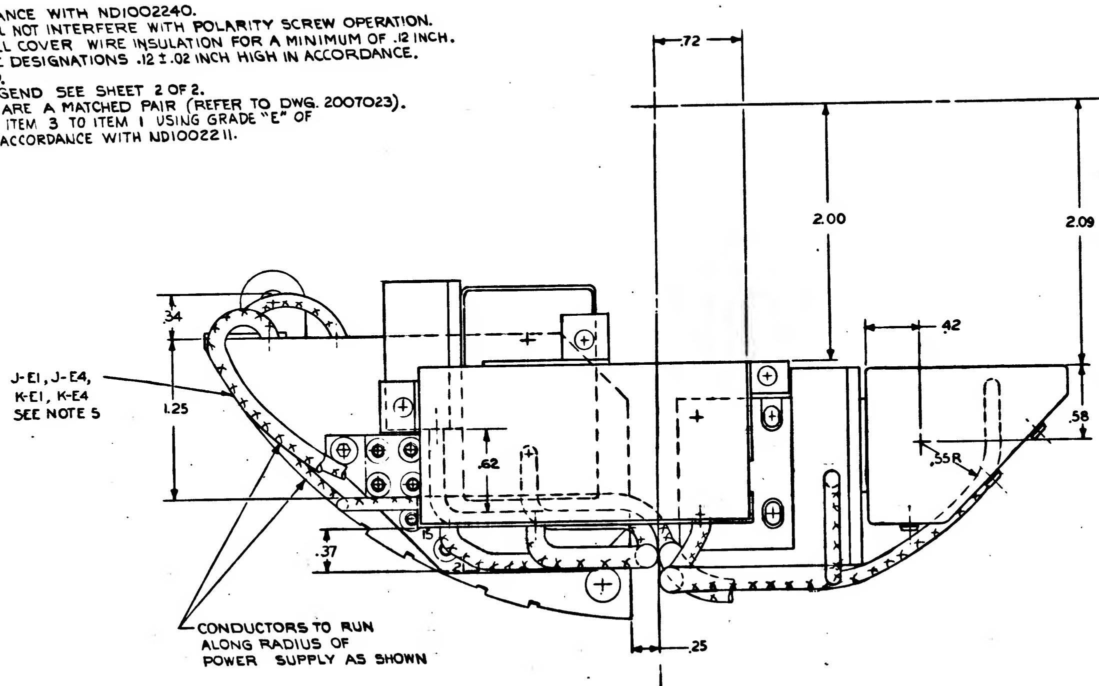
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2 1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

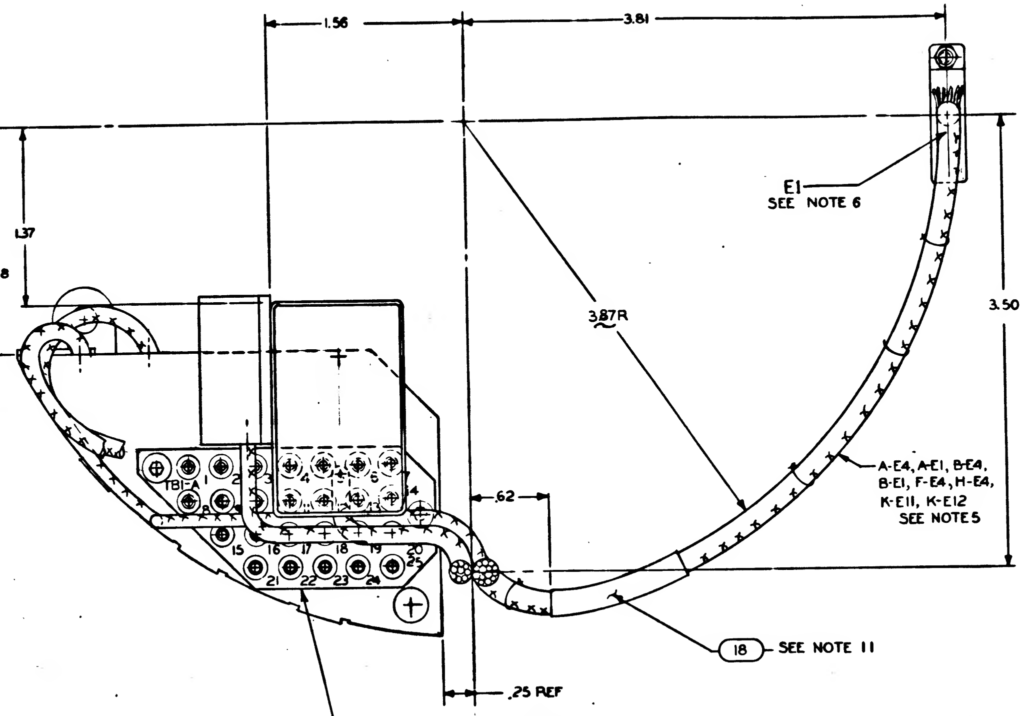
B	2012509

REVISIONS — DRR 16658

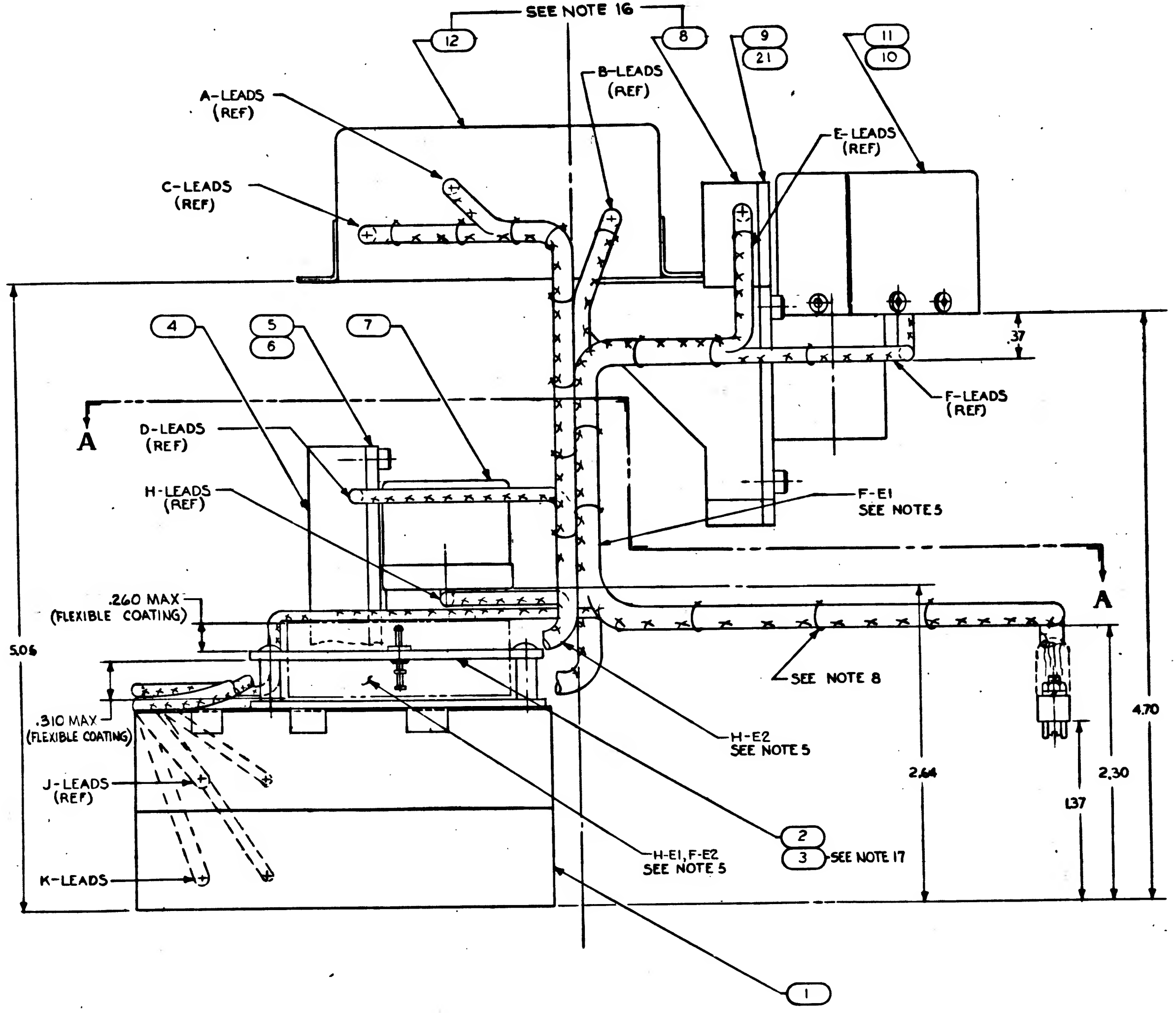
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023		WR
B		REVISED PER TDRR 21532		WR

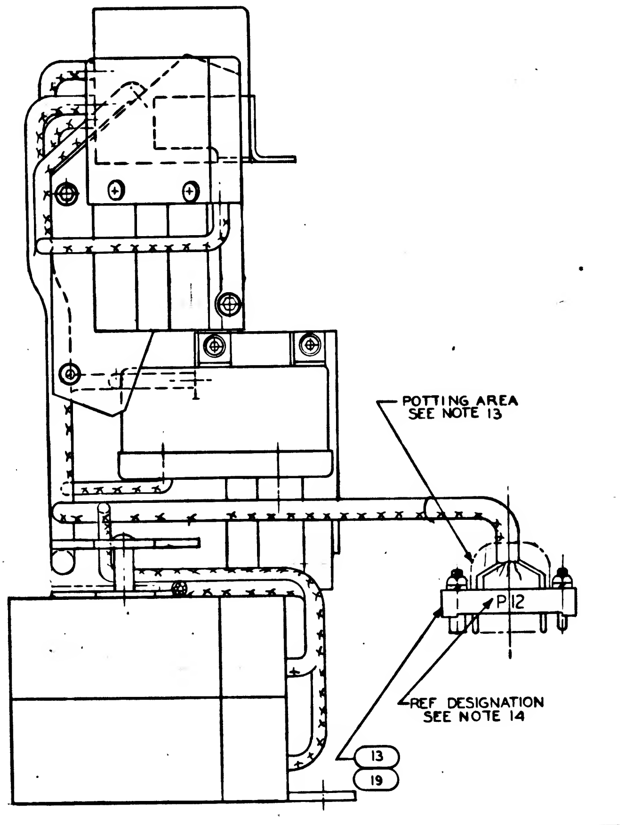
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012391.
3. TWIST CONDUCTORS IN ACCORDANCE WITH ND1002032.
4. APPLY ITEMS ⑱ AND ⑲ TO LEADS.
5. TERMINATE SHIELDED WIRES, USING ITEM ⑰, IN ACCORDANCE WITH ND1002071
6. E1 POINT TO BE A SPLICE, USING ITEM ⑳, IN ACCORDANCE WITH ND1002032 APPROXIMATE LOCATION OF E-POINT SHOWN ON HARNESS.
7. SOLDER CONDUCTORS IN ACCORDANCE WITH ND1002071.
8. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.
9. PERFORM CONTINUITY CHECK.
10. PLACE ITEM ⑲ OVER CONTACTS AND LEADS AND SHRINK.
11. SHRINK ITEM ⑱ AND IDENTIFY ASSEMBLY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.
12. FLEXIBLE COAT ITEM ② USING TYPE II (FLEXIBLE) OF ND1002004
13. POT IN ACCORDANCE WITH ND1002240.
    A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION.
    B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH.
14. MARK REFERENCE DESIGNATIONS .12 ± .02 INCH HIGH IN ACCORDANCE. WITH ND1002019.
15. FOR WIRING LEGEND SEE SHEET 2 OF 2.
16. ITEMS 8 AND 12 ARE A MATCHED PAIR (REFER TO DWG. 2007023).
17. VIBRATION PROOF ITEM 3 TO ITEM 1 USING GRADE "E" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.





FLEXIBLE COAT NOT TO EXCEED OUTLINED DIMENSIONS OF TERMINAL BOARD FOR MORE THAN .031 AND WITHIN INDICATED DIMENSIONS (.260 MAX AND .310 MAX). COATING SHALL BE APPLIED OVER WIRES AND SOLDER CONNECTIONS FOR A MIN THICKNESS OF .030. MOUNTING HOLES TO BE FREE OF COATING (SEE NOTE 12).





ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
24	1	*	1010708-5			WIRE MODIFIED, INSULATED, SOLID COPPER (6" LG)			
23	1	*	1010416-7			WIRE, ELECTRICAL, STRANDED, INSULATED			
22	1	*	1010416-5			WIRE, ELECTRICAL, STRANDED, INSULATED			
21	3		1011625-28	74455151028		SCREW CAP HEX, SOC HD, SELF-LOCKING			
20	1	*	1010490-114			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
19	15	*	1010490-058			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
18	1	*	1010490-278			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
17	8	*	1010402-1			SLEEVE, SOLDER, ELECT, COND. INSUL, HEAT SHRINK			
16	1	*	1010416-1			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
15	1	*	1010416-3			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
14	1	*	1010416-10			WIRE, ELECTRICAL, STRANDED, INSULATED			
13	1	*	1011740-2			CONNECTOR, ELECTRICAL RECTANGULAR			
12	1		2007023			TUNING FORK ASSY TRACKER AND PHOTOMETER			
11	1		2007024			HEAD ELECTRONICS ASSY (TRACKER)			
10	2		NAS1352C04LL4	74455157013		SCREW, CAP, HEX SOC HD SELF-LOCKING			
9	1		2012483	85386911000		PHOTOMULTIPLIER HOUSING AND LENS ASSY (S.T)			
8	1	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
7	1		2007025			HEAD. ELECTRONICS ASSEMBLY (PHOTOMETER)			
6	3		NAS1352C03LL4	74455157009		SCREW, CAP, HEX SOC HD SELF-LOCKING			
5	1		2012481	85386910990		PHOTOMULTIPLIER HOUSING AND LENS ASSY (H.S.)			
4	1		2012518	85386911300		RESONATOR, TUNING FORK AND FIELD STOP, ASSY OF			
3	2	*	2012619	48386910190		SCREW, BUTTON HEAD, MODIFIED			
2	1		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
1	1		2012516	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± .12 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070
DRAWN E. DRAPALA DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL 2-15-65
APPROVAL 2-15-65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS.
HARNESS ASSY OF

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2012509 B

REVISIONS TDRR 16653				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023	4/15/65	WK
B		REVISED PER TDRR 21532	5/24/65	WK

NOTES:
SEE SHEET 1 OF 2.

WIRING LEGEND

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
TUNING FORK ASSY–TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	RED	A-E5		TB1-B7	8
			E3	RED	A-E3		TB1-B6	
			E7	RED	A-E7		TB1-B5	8
			E2	BLACK	A-E2		TB1-B19	
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-K	
		14		WHITE	A-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	A-E1		P12-H	
		14		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	RED	B-E5		TB1-B23	8
			E3	RED	B-E3		TB1-B24	
			E7	RED	B-E7		TB1-B25	8
			E2	BLACK	B-E2		TB1-B22	
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-C	
		14		WHITE	B-E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	B-E1		P12-A	
		14		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	RED	C-E2		TB1-B4	8
			E4	RED	C-E4		TB1-B11	
			E5	RED	C-E5		TB1-B16	8
			E3	BLACK	C-E3		TB1-B17	
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG.-E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
HEAD ELECTRONICS ASSY (TRACKER) 2007024 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		14		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		14		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		P12-D	
			E4	WHITE	F-E4		P12-F	
		14		WHITE	F-E4 SHIELD		A-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		14		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		14		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		P12-T	
			E4	WHITE	H-E4		P12-V	
		14		WHITE	H-E4 SHIELD		E1	
H V POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030	HV POWER SUPPLY ASSY (TRACKER) 2007032 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		14		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		14		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	8
			E5	BLACK	K-E5		TB1-B18	
			E11	WHITE	K-E11		P12-N	
		14		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		14		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWEP SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		14		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		14		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		14		WHITE	TB1-A21	E1	P12-U	
		15		RED	TB1-A14		P12-W	8
		16		BLACK	TB1-A20		P12-X	
		22		YELLOW	TB1-A18		P12-S	
		23		BLUE	TB1-A18		P12-L	
		24	**	BLUE	TB1-B12		TB1-B13	
		24	**	BLUE	TB1-B13		TB1-B14	
		24	**	BLUE	TB1-B22		TB1-B17	
		24	**	BLUE	TB1-B17		TB1-B18	
		24	**	BLUE	TB1-B1		TB1-B8	
		24		BLUE	TB1-B8		TB1-B22	

* * -TO FACILITATE ASSEMBLY
INSULATION MAY BE STRIPPED FROM WIRE.

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070

DRAWN E. DRAPALA DATE 2-8-65
CHECKED P.A. Lane 2-15-65
APPROVAL G. [illegible] 2-15-[illegible]
APPROVAL E. Morozo 2-15-65
NASA APPROVAL [illegible]
MIT APPROVAL W. Kupfer 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS,
HARNESS ASSY OF

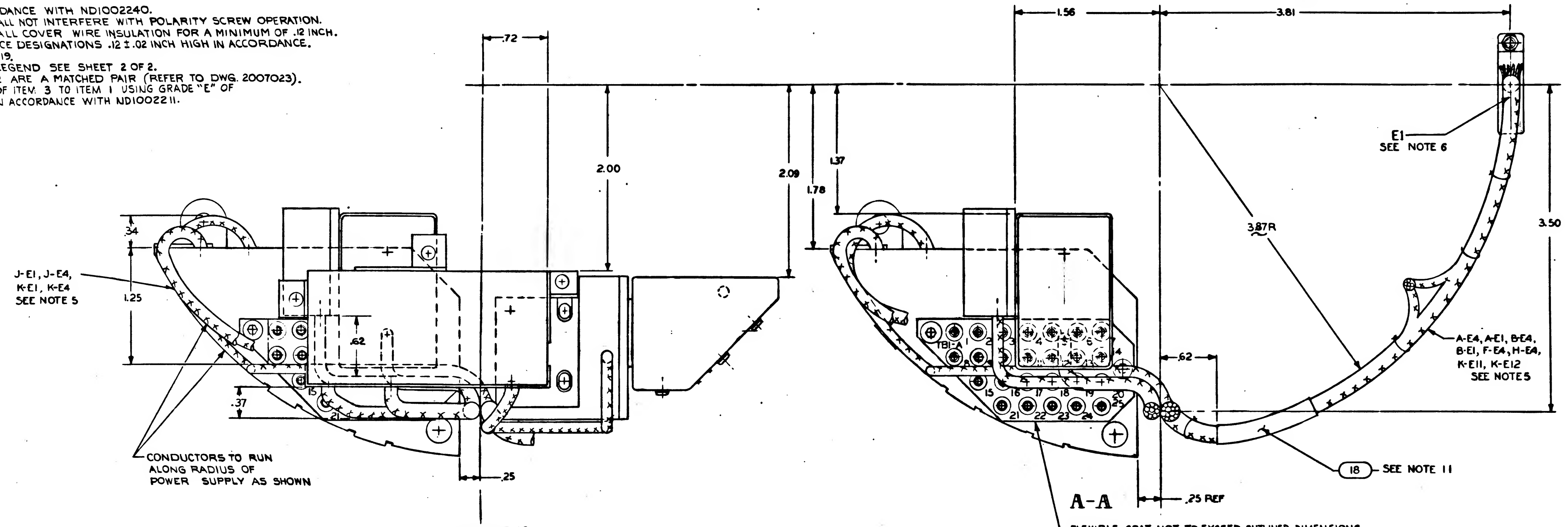
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2 1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

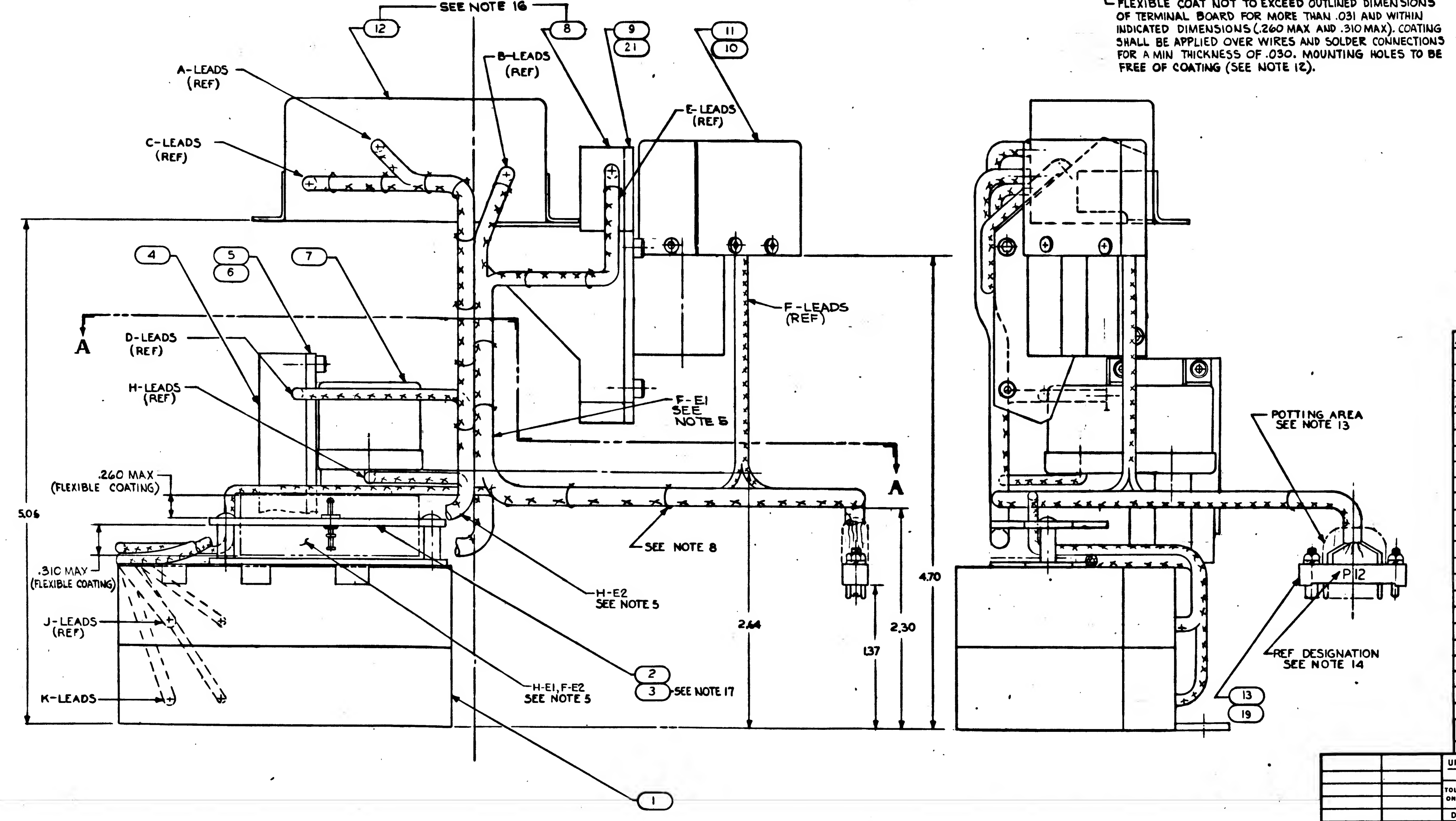
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012391.
3. TWIST CONDUCTORS IN ACCORDANCE WITH ND1002032.
4. APPLY ITEMS ⑱ AND ⑲ TO LEADS.
5. TERMINATE SHIELDED WIRES, USING ITEM ⑰, IN ACCORDANCE WITH ND1002071
6. E1 POINT TO BE A SPLICE, USING ITEM ⑳, IN ACCORDANCE WITH ND1002032
APPROXIMATE LOCATION OF E-POINT SHOWN ON HARNESS.
7. SOLDER CONDUCTORS IN ACCORDANCE WITH ND1002071.
8. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.
9. PERFORM CONTINUITY CHECK.
10. PLACE ITEM ⑲ OVER CONTACTS AND LEADS AND SHRINK.
11. SHRINK ITEM ⑱ AND IDENTIFY ASSEMBLY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.
12. FLEXIBLE COAT ITEM ② USING TYPE II (FLEXIBLE) OF ND1002004
13. POT IN ACCORDANCE WITH ND1002240.
A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION.
B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH.
14. MARK REFERENCE DESIGNATIONS .12 ± .02 INCH HIGH IN ACCORDANCE. WITH ND1002019.
15. FOR WIRING LEGEND SEE SHEET 2 OF 2.
16. ITEMS 8 AND 12 ARE A MATCHED PAIR (REFER TO DWG. 2007023).
17. VIBRATION PROOF ITEM 3 TO ITEM 1 USING GRADE "E" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.

2012509 C

REVISIONS TDRR 16658

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023	[illegible]	WK
B		REVISED PER TDRR 21532	[illegible]	WK
C		REVISED PER TDRR 21537	[illegible]	[illegible]


.72
2.00
2.09
1.37
1.78
.34
1.25
.62
.37
.25
J-E1, J-E4, K-E1, K-E4 SEE NOTE 5
CONDUCTORS TO RUN ALONG RADIUS OF POWER SUPPLY AS SHOWN
1.56
3.81
3.87R
3.50
E1 SEE NOTE 6
TB1-A
A-E4, A-E1, B-E4, B-E1, F-E4, H-E4, K-E11, K-E12 SEE NOTE 5
.62
.25 REF
18 SEE NOTE 11
A-A



FLEXIBLE COAT NOT TO EXCEED OUTLINED DIMENSIONS OF TERMINAL BOARD FOR MORE THAN .031 AND WITHIN INDICATED DIMENSIONS (.260 MAX AND .310 MAX). COATING SHALL BE APPLIED OVER WIRES AND SOLDER CONNECTIONS FOR A MIN THICKNESS OF .030. MOUNTING HOLES TO BE FREE OF COATING (SEE NOTE 12).

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
24	1	*	1010708-5			WIRE MODIFIED, INSULATED, SOLID COPPER (6" LG)			
23	1	*	1010416-7			WIRE, ELECTRICAL, STRANDED, INSULATED			
22	1	*	1010416-5			WIRE, ELECTRICAL, STRANDED, INSULATED			
21	3		1011625-28	74455151028		SCREW CAP HEX, SOC HD, SELF-LOCKING			
20	1	*	1010490-114			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
19	15	*	1010490-058			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
18	1	*	1010490-278			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
17	8	*	1010402-1			SLEEVE, SOLDER, ELECT, COND. INSUL, HEAT SHRINK.			
16	1	*	1010416-1			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
15	1	*	1010416-3			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
14	1	*	1010416-10			WIRE, ELECTRICAL, STRANDED, INSULATED			
13	1	*	1011740-2			CONNECTOR, ELECTRICAL RECTANGULAR			
12	1		2007023			TUNING FORK ASSY TRACKER AND PHOTOMETER			
11	1		2007024			HEAD ELECTRONICS ASSY (TRACKER)			
10	2		NAS1352C04LL4	74455157013		SCREW, CAP, HEX SOC HD SELF-LOCKING			
9	1		2012483	85386911000		PHOTOMULTIPLIER HOUSING AND LENS ASSY (S.T)			
8	1	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
7	1		2007025			HEAD. ELECTRONICS ASSEMBLY (PHOTOMETER)			
6	3		NAS1352C03LL4	74455157009		SCREW, CAP, HEX SOC HD SELF-LOCKING			
5	1		2012481	85386910990		PHOTOMULTIPLIER HOUSING AND LENS ASSY (H.S.)			
4	1		2012518	85386911300		RESONATOR, TUNING FORK AND FIELD STOP, ASSY OF			
3	2	*	2012619	48386910190		SCREW, BUTTON HEAD, MODIFIED			
2	1		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
1	1		2012516	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± .12 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070
DRAWN [illegible] DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL [illegible] 2-17-65
APPROVAL E. [illegible] 2-15-65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS.
HARNESS ASSY OF

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

MASTER

2012509 C

NOTES:
SEE SHEET 1 OF 2.

REVISIONS TDRR 16658				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20023	[illegible]	WK
B		REVISED PER TDRR 21532	9/24/65	WK
C		REVISED PER TDRR 21537	[illegible]	[illegible]

WIRING LEGEND

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
TUNING FORK ASSY-TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	RED	A-E5		TB1-B7	8
			E3	RED	A-E3		TB1-B6	
			E7	RED	A-E7		TB1-B5	8
			E2	BLACK	A-E2		TB1-B19	
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-K	
		14		WHITE	A-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	A-E1		P12-H	
		14		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	RED	B-E5		TB1-B23	8
			E3	RED	B-E3		TB1--B24	
			E7	RED	B-E7		TB1-B25	8
			E2	BLACK	B-E2		TB1-B22	
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-C	
		14		WHITE	B-E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	B-E1		P12-A	
		14		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	RED	C-E2		TB1-B4	8
			E4	RED	C-E4		TB1-B11	
			E5	RED	C-E5		TB1-B16	8
			E3	BLACK	C-E3		TB1-B17	
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG. - E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
HEAD ELECTRONICS ASSY (TRACKER) 2007024 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		14		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		14		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		P12-D	
			E4	WHITE	F-E4		P12-F	
		14		WHITE	F-E4 SHIELD		A-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		14		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		14		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		P12-T	
			E4	WHITE	H-E4		P12-V	
		14		WHITE	H-E4 SHIELD		E1	
H V POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030	H V POWER SUPPLY ASSY (TRACKER) 2007032 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		14		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		14		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	8
			E5	BLACK	K-E5		TB1-B18	
			E11	WHITE	K-E11		P12-N	
		14		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		14		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWEP SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		14		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		14		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		14		WHITE	TB1-A21	E1	P12-U	
		15		RED	TB1-A14		P12-W	8
		16		BLACK	TB1-A20		P12-X	
		22		YELLOW	TB1-A18		P12-S	
		23		BLUE	TB1-A18		P12-L	
		24	**	BLUE	TB1-B12		TB1-B13	
		24	**	BLUE	TB1-B13		TB1-B14	
		24	**	BLUE	TB1-B22		TB1-B17	
		24	**	BLUE	TB1-B17		TB1-B18	
		24	**	BLUE	TB1-B1		TB1-B8	
		24		BLUE	TB1-B8		TB1-B22	

** -TO FACILITATE ASSEMBLY
INSULATION MAY BE STRIPPED FROM WIRE.

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070

DRAWN E. DRAPALA DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL [illegible] 2-15-65
APPROVAL [illegible] 2-15-65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS,
HARNESS ASSY OF

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012509
SCALE 2 1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

MASTER

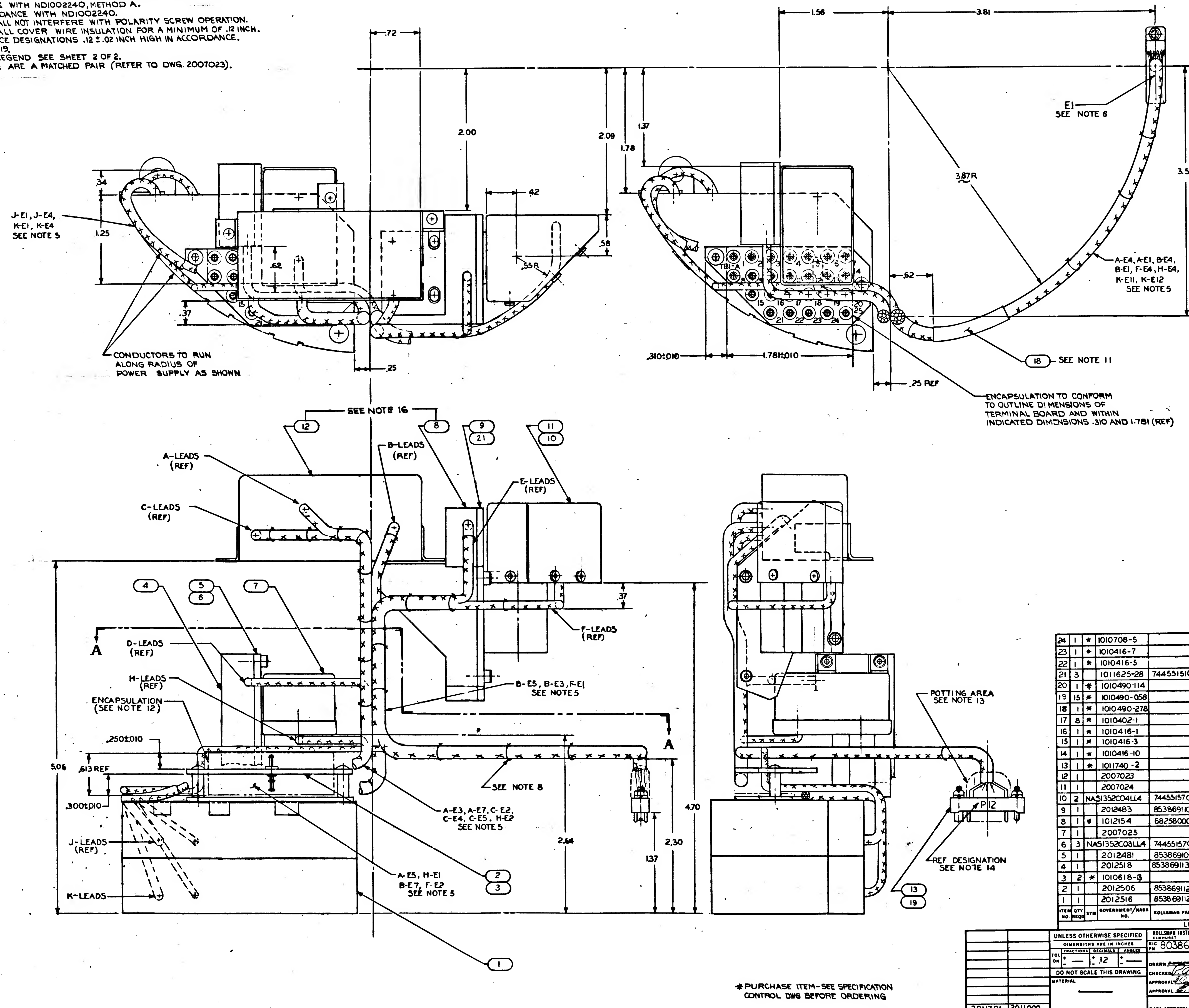
2012509 C

2012509

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012391.
3. TWIST CONDUCTORS IN ACCORDANCE WITH ND1002032.
4. APPLY ITEMS ⑱ AND ⑲ TO LEADS.
5. TERMINATE SHIELDED WIRES, USING ITEM ⑰, IN ACCORDANCE WITH ND1002071
6. E1 POINT TO BE A SPLICE, USING ITEM ⑳, IN ACCORDANCE WITH ND1002032 APPROXIMATE LOCATION OF E-POINT SHOWN ON HARNESS.
7. SOLDER CONDUCTORS IN ACCORDANCE WITH ND1002071.
8. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.
9. PERFORM CONTINUITY CHECK.
10. PLACE ITEM ⑲ OVER CONTACTS AND LEADS AND SHRINK.
11. SHRINK ITEM ⑱ AND IDENTIFY ASSEMBLY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.
12. ENCAPSULATE TERMINAL BOARD, TO DIMENSIONS SHOWN, IN ACCORDANCE WITH ND1002240, METHOD A.
13. POT IN ACCORDANCE WITH ND1002240.
    A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION.
    B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH.
14. MARK REFERENCE DESIGNATIONS .12 ± .02 INCH HIGH IN ACCORDANCE. WITH ND1002019.
15. FOR WIRING LEGEND SEE SHEET 2 OF 2.
16. ITEMS 8 AND 12 ARE A MATCHED PAIR (REFER TO DWG. 2007023).



24	1	*	1010708-5			WIRE MODIFIED, INSULATED, SOLID COPPER (6"LG)			
23	1	*	1010416-7			WIRE, ELECTRICAL, STRANDED, INSULATED			
22	1	*	1010416-5			WIRE, ELECTRICAL, STRANDED, INSULATED			
21	3		1011625-28	74455151028		SCREW CAP HEX, SOC HD, SELF-LOCKING			
20	1	*	1010490-114			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
19	15	*	1010490-058			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
18	1	*	1010490-278			INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
17	8	*	1010402-1			SLEEVE, SOLDER, ELECT, COND. INSUL, HEAT SHRINK.			
16	1	*	1010416-1			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
15	1	*	1010416-3			WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
14	1	*	1010416-10			WIRE, ELECTRICAL, STRANDED, INSULATED			
13	1	*	1011740-2			CONNECTOR, ELECTRICAL RECTANGULAR			
12	1		2007023			TUNING FORK ASSY TRACKER AND PHOTOMETER			
11	1		2007024			HEAD ELECTRONICS ASSY (TRACKER)			
10	2		NAS1352C04LL4	74455157013		SCREW, CAP, HEX SOC HD SELF-LOCKING			
9	1		2012483	85386911000		PHOTOMULTIPLIER HOUSING AND LENS ASSY (S.T)			
8	1	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
7	1		2007025			HEAD. ELECTRONICS ASSEMBLY (PHOTOMETER)			
6	3		NAS1352C03LL4	74455157009		SCREW, CAP, HEX SOC HD SELF-LOCKING			
5	1		2012481	85386910990		PHOTOMULTIPLIER HOUSING AND LENS ASSY (H.S.			
4	1		2012518	85386911300		RESONATOR, TUNING FORK AND FIELD STOP, ASSY O			
3	2	*	1010618-13			SCREW, BUTTON HEAD SELF-LOCKING, SOCKET HEX			
2	1		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
1	1		2012516	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			
ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± .12 ; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070

DRAWN ~~ABBAPALA~~ DATE ~~2-8-65~~
CHECKED P. A. Lowe 2-15-65
APPROVAL 2-15-65
APPROVAL E. Morgan 2-15-65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS.
HARNESS ASSY OF

CODE IDENT NO.
SIZE E
NASA NUMBER 2012509
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

*PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NOTES:
SEE SHEET 1 OF 2.

WIRING LEGEND

	MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
TUNING FORK ASSY-TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	WHITE	A-E5		TB1-B7	
		14		WHITE	A-E5 SHIELD		A-E3 SHIELD	
			E3	WHITE	A-E3		TB1-B6	
		14		WHITE	A-E3 SHIELD		A-E7 SHIED	
			E7	WHITE	A-E7		TB1-B5	
		14		WHITE	A-E7 SHIELD		C-E2 SHIELD	
			E2	BLACK	A-E2		TB1-A19	8
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-C	
		14		WHITE	A-E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	A-E1		P12-A	
		14		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	WHITE	B-E5		TB1-B23	
		14		WHITE	B-E5 SHIELD		B-E3 SHIELD	
			E3	WHITE	B-E3		TB1-B24	
		14		WHITE	B-E3 SHIELD		B-E7 SHIELD	
			E7	WHITE	B-E7		TB1-B25	
		14		WHITE	B-E7 SHIELD		A-E5 SHIELD	
			E2	BLACK	B-E2		TB1-A22	8
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-K	
		14		WHITE	B-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	B-E1		P12-H	
		14		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	WHITE	C-E2		TB1-B4	
		14		WHITE	C-E2 SHIELD		C-E4 SHIELD	
			E4	WHITE	C-E4		TB1-B11	
		14		WHITE	C-E4 SHIELD		C-E5 SHIELD	
			E5	WHITE	C-E5		TB1-B16	
		14			C-E5 SHIELD		TB1-B21	
			E3	BLACK	C-E3		TB1-A17	8
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG.-E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

	MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 3
HEAD ELECTRONICS ASSY (TRACKER) 2007024 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		14		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		14		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		P12-D	
			E4	WHITE	F-E4		P12-F	
		14		WHITE	F-E4 SHIELD		B-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		14		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		14		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		P12-T	
			E4	WHITE	H-E4		P12-V	
		14		WHITE	H-E4 SHIELD		E1	
HV POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030	HV POWER SUPPLY ASSY (TRACKER) 2007032 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		14		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		14		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	8
			E5	BLACK	K-E5		TB1-B18	
			E11	WHITE	K-E11		P12-N	
		14		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		14		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWEP SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		14		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		14		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		14		WHITE	TB1-A21	E1	P12-U	
		15		RED	TB1-A14		P12-W	8
		16		BLACK	TB1-A20		P12-X	
		22		YELLOW	TB1-A18		P12-S	
		23		BLUE	TB1-A20		P12-L	
		24	**	BLUE	TB1-B12		TB1-B13	
		24	**	BLUE	TB1-B13		TB1-B14	
		24	**	BLUE	TB1-B22		TB1-B17	
		24	**	BLUE	TB1-B17		TB1-B18	
		24	**	BLUE	TB1-B18		TB1-B19	
		24	**	BLUE	TB1-B19		TB1-B20	

** -TO FACILITATE ASSEMBLY
INSULATION MAY BE STRIPPED FROM WIRE.

REVISIONS TDRR 16658				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

2012509

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011701	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 80386910070
DRAWN ~~E. DRABALA~~ DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL G. Rueben 2-15-65
APPROVAL E. Morrys 2-15-65
NASA APPROVAL
MIT APPROVAL W Kupfer 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HEAD ELECTRONICS,
HARNESS ASSY OF

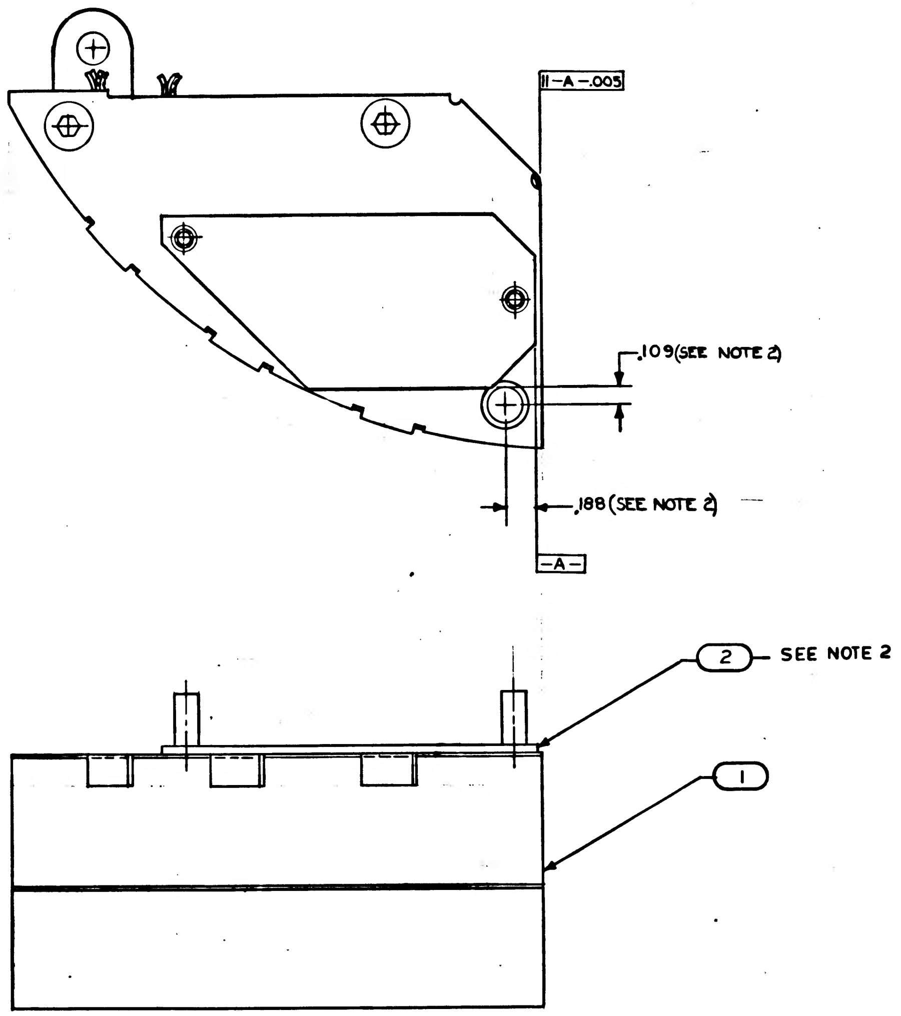
CODE IDENT NO.
SIZE E
NASA NUMBER 2012509
SCALE 2 1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

MASTER

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. LOCATE ITEM ② FROM ℄ OF STUD IN ITEM ① AND BOND ITEM ② TO ITEM ① AS SHOWN IN ACCORDANCE WITH ND 1002004, TYPE II.
3. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019(TAGGING)

2012516 A

REVISIONS TDRR 1658				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 21304	11/9/65	



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	1		2012505	85386911250		PLATE, STAND-OFF ASSEMBLY OF			
1	1		2007030	———		HV POWER SUPPLY PHOTOMETER-TRACKER ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012509	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .010	± —

DO NOT SCALE THIS DRAWING

MATERIAL ———

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911290

DRAWN E. DRAPALA DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL G. [illegible] 2-15-65
APPROVAL E. [illegible] 2-15-65
NASA APPROVAL [illegible] 4/16
MIT APPROVAL W [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HV POWER SUPPLY AND
PLATE, ASSY OF

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012516
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

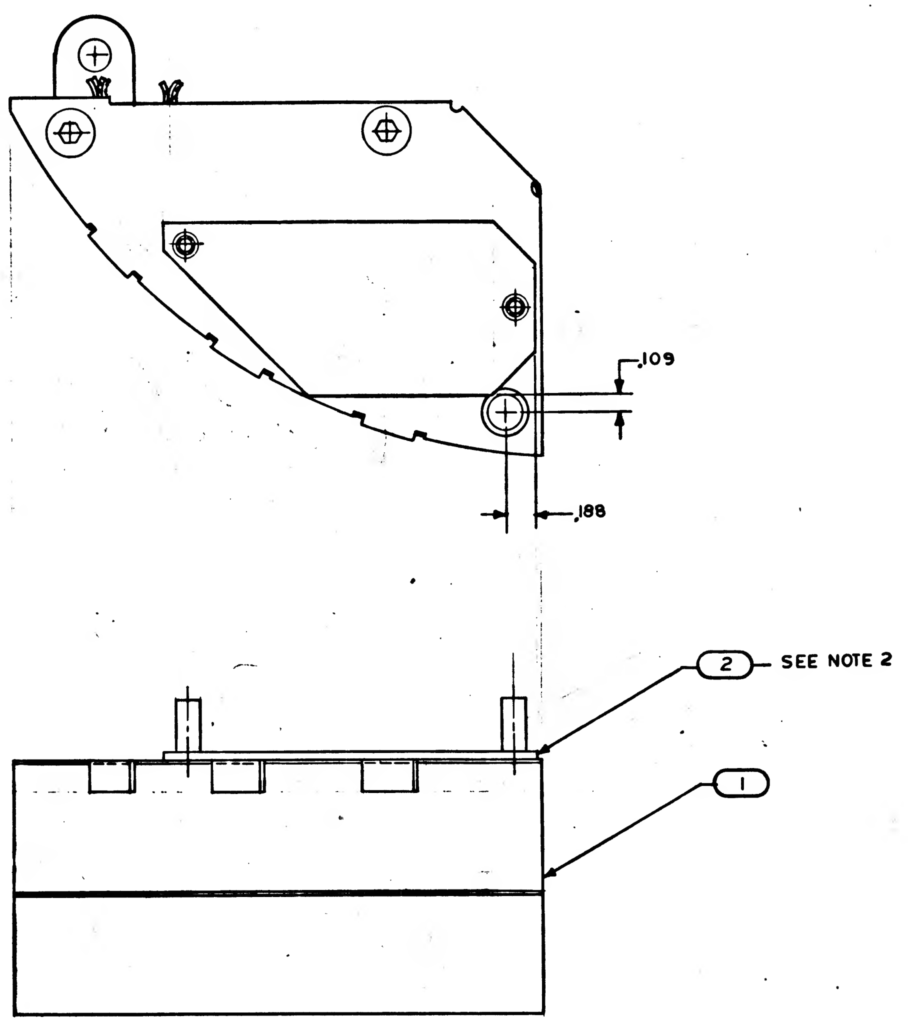
AD-1380

2012516

REVISIONS TDRR 166-3

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. BOND IN PLACE ITEM ① TO ITEM ② AS SHOWN IN ACCORDANCE WITH ND1C02004 TYPE II.
3. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019(TAGGING)



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	1		2012505	85386911250		PLATE, STAND-OFF ASSEMBLY OF			
1	1		2007030	——		HV POWER SUPPLY PHOTOMETER-TRACKER ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012509	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ——	± .010	± ——

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
K/C PN 85386911290

DRAWN E. DRAPALA DATE 2-8-65
CHECKED P. A. Leone 2-15-65
APPROVAL G. Rurbman 2-15-65
APPROVAL E. Alhonga 2-15-65
NASA APPROVAL 4/16/
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HV POWER SUPPLY AND
PLATE, ASSY OF

CODE IDENT NO. SIZE D NASA NUMBER 2012516
SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

MASTER

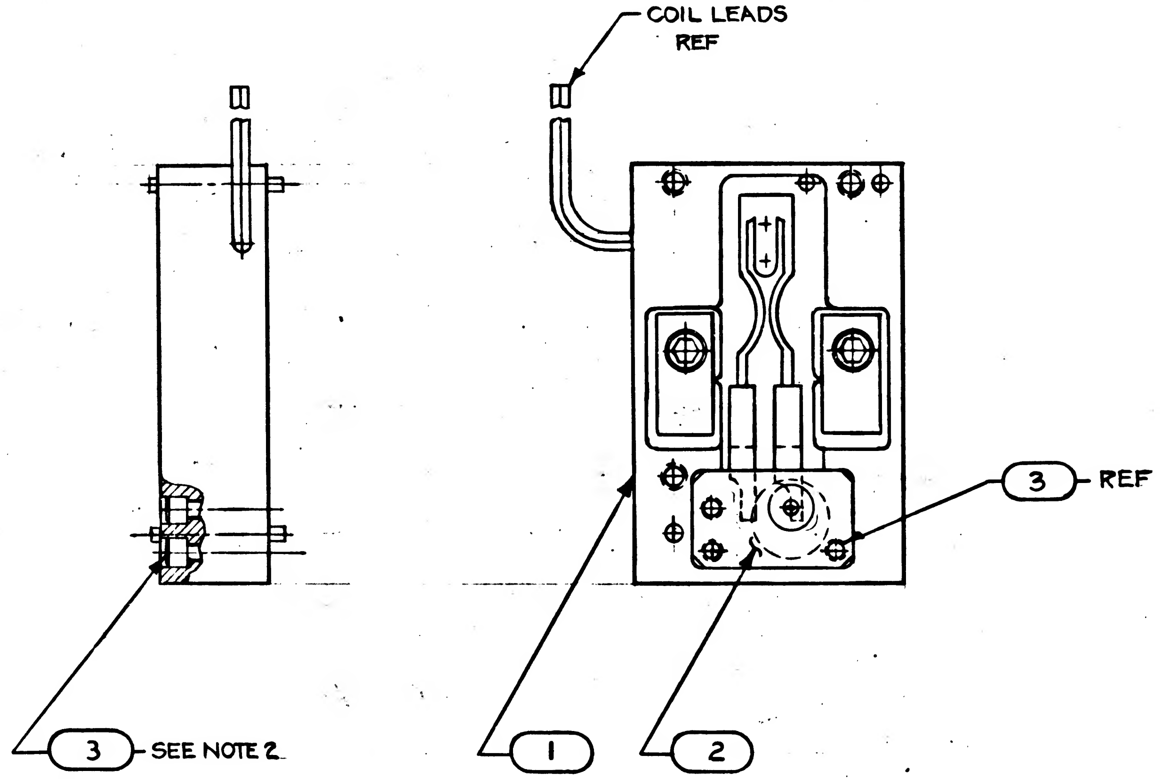
AD-1300

2012518 A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF ITEM 3 TO ITEM 2 USING GRADE "HY" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
3. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING).

REVISIONS 16877

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 19847	6/4/65	WH



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
3	3	*	2012532	48386910160		SCREW, CAP, SOC. HD., SELF LOCKING			
2	1		2012495	85386911220		FIELD STOP, ASSEMBLY			
1	1	*	1012155	68258001001		RESONATOR, TUNING FORK, ASSY OF (PHOTOMETER)			

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

2012509	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ——	± ——	± ——

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911300

DRAWN E. DRAPALA DATE 2-10-65
CHECKED T. SULLIVAN 2-17-65
APPROVAL 2-15-65
APPROVAL 2-25-65
NASA APPROVAL W J Kline 2-1-65
MIT APPROVAL 24 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
RESONATOR, TUNING FORK
AND FIELD STOP, ASSY OF

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012518
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

AD-1340

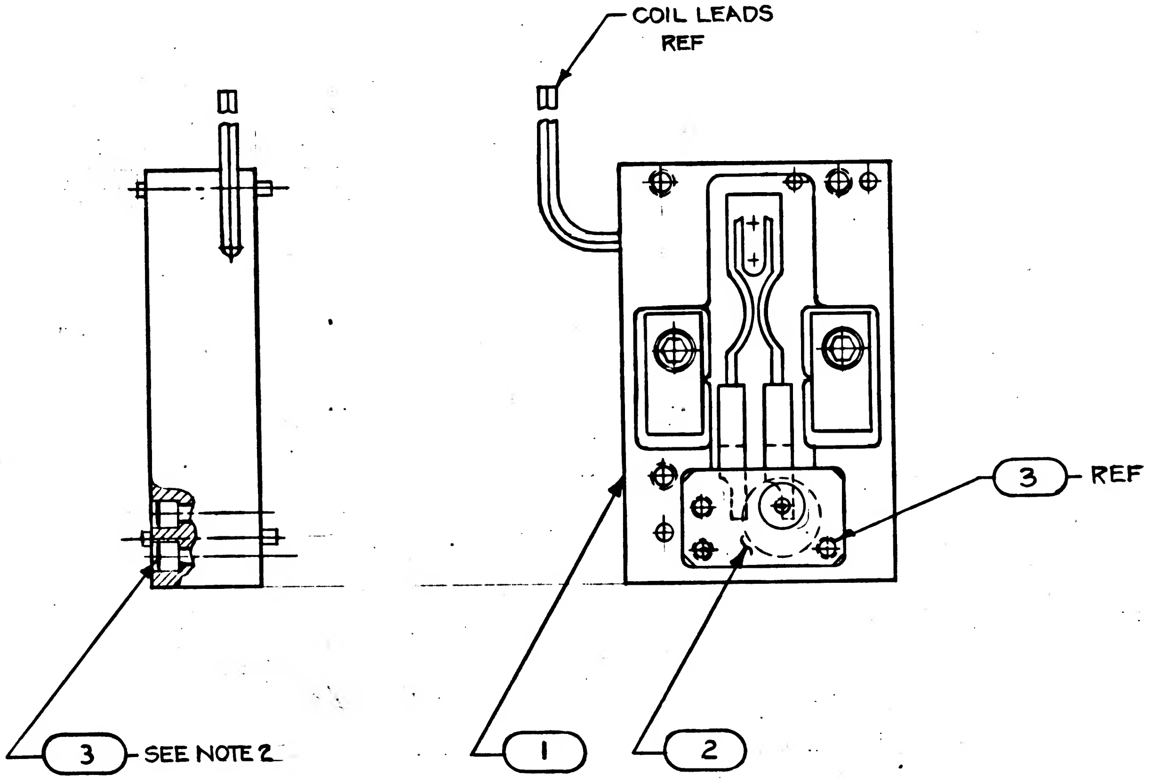
2012518 A

2012518

REVISIONS 16877				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING).



3	3	*	2012532	48386910160		SCREW, CAP, SOC. HD., SELF LOCKING			
2	1		2012495	85386911220		FIELD STOP, ASSEMBLY			
1	1	*	1012155	68258001001		RESONATOR, TUNING FORK, ASSY OF (PHOTOMETER)			
ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNI WT

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

2012509	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ——	± ——	± ——

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911300

DRAWN E. DRAPALA DATE 2-10-65
CHECKED T. SULLIVAN 2-17-65
APPROVAL 2-11-65
APPROVAL 2-25-65
NASA APPROVAL W J Kline 2-1/65
MIT APPROVAL 24 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
RESONATOR, TUNING FORK
AND FIELD STOP, ASSY OF

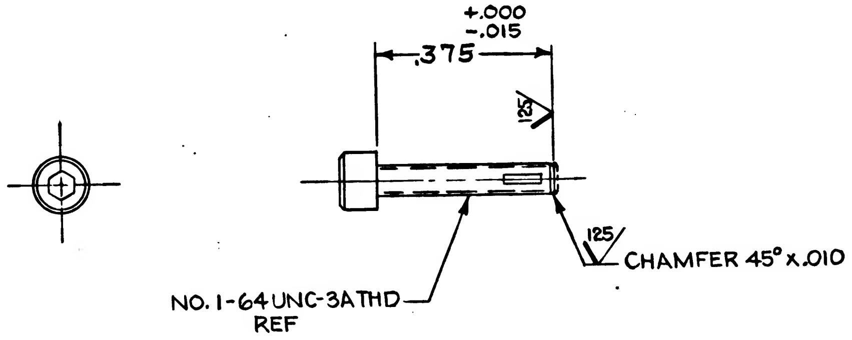
CODE IDENT NO.
SIZE C
NASA NUMBER 2012518
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

D-1340

2012532

REVISIONS 16877			
SYM	DESCRIPTION	DATE	APPROVA

NOTES
1) INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2) GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3) REMOVE BURRS IN ACCORDANCE WITH ND1002019.
4) IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING).



MASTER

ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012518	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL NAS1352C01LL6
74455157004
REF. CORROSION RESISTANT STEEL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 48386910160
DRAWN A.C.WILLIAMS DATE 2-12-65
CHECKED J. SULLIVAN 2-12-65
APPROVAL 2-15-65
APPROVAL E. Thorup 2-25-65
NASA APPROVAL 3-11-65
MIT APPROVAL 26 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCREW, CAP,
SOCKET HEAD
SELF LOCKING

CODE IDENT NO.
SIZE B
NASA NUMBER 2012532
SCALE 4/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

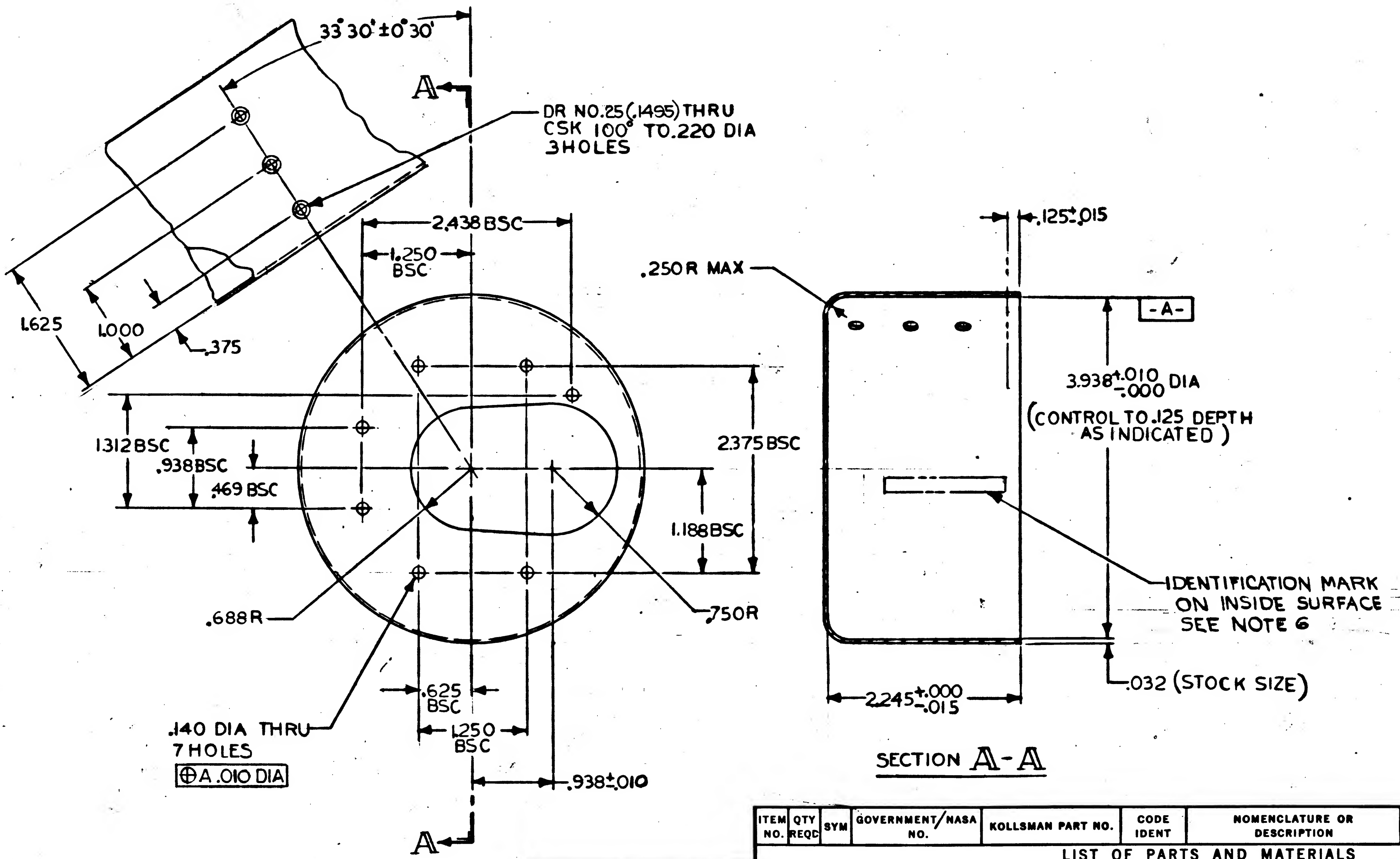
E-153

6 | 5 | 4 | 3 | 2 | 1

2012545 A

REVISIONS TD 18584				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 23070	10/19/65	WK

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. ANODIZE (SULFURIC) INSIDE SURFACES ONLY (HOLES OPTIONAL) PER MIL-A-8625 TYPE II DYED BLACK (KPS-1005A.150 TYPE II CLASS 3).
6. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019.



SECTION A-A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012547	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	±—	±.005	±1°

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED SPEC QQ-A-250/8
TEMPER O

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910130

DRAWN E. DRAPALA DATE 3-1-65
CHECKED J. SULLIVAN 4-25-65
APPROVAL G. Quinlan 3/26/65
APPROVAL E. Thomp 4/26/65
NASA APPROVAL W J R 4-27-65
MIT APPROVAL W 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER,
TELESCOPE HEAD

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012545
SCALE 1/1	WEIGHT CALC ACTUAL	SHEET 1 OF 1

AD-1340

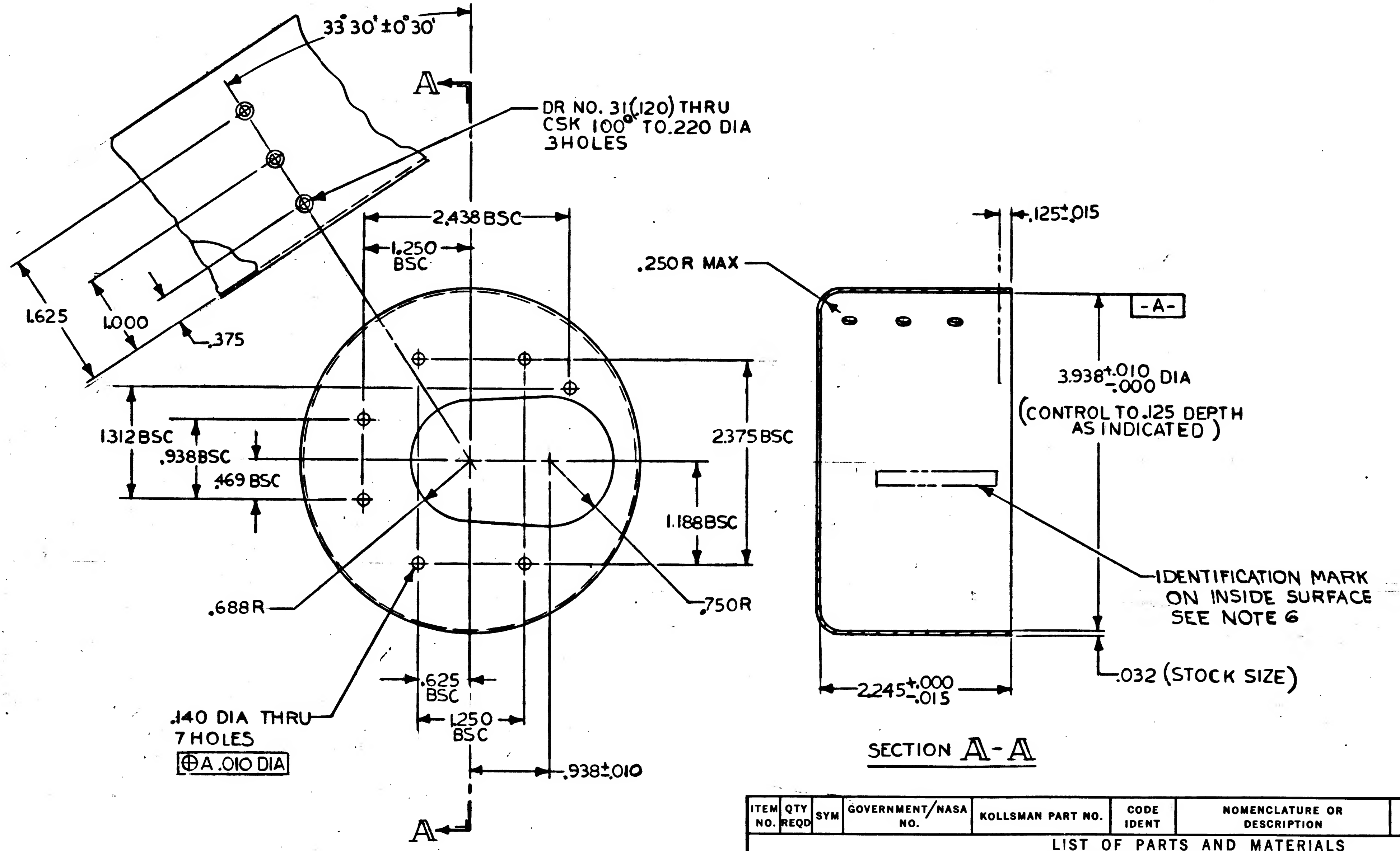
6 | 5 | 4 | 3 | 2 | 1

2012545

SYM	ZONE	REVISIONS TD 18584 DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. ANODIZE (SULFURIC) INSIDE SURFACES ONLY (HOLES OPTIONAL) PER MIL-A-8625 TYPE II DYED BLACK (KPS-1005A.150 TYPE II CLASS 3).
6. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002015.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012547	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED SPEC QQ-A-250/8
TEMPER O

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910130

DRAWN E. DRAPALA DATE 3-1-65
CHECKED J. SULLIVAN 4-25-65
APPROVAL 3/26/65
APPROVAL E. Thomas 4/26/65
NASA APPROVAL 4-27-65
MIT APPROVAL 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER,
TELESCOPE HEAD

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012545

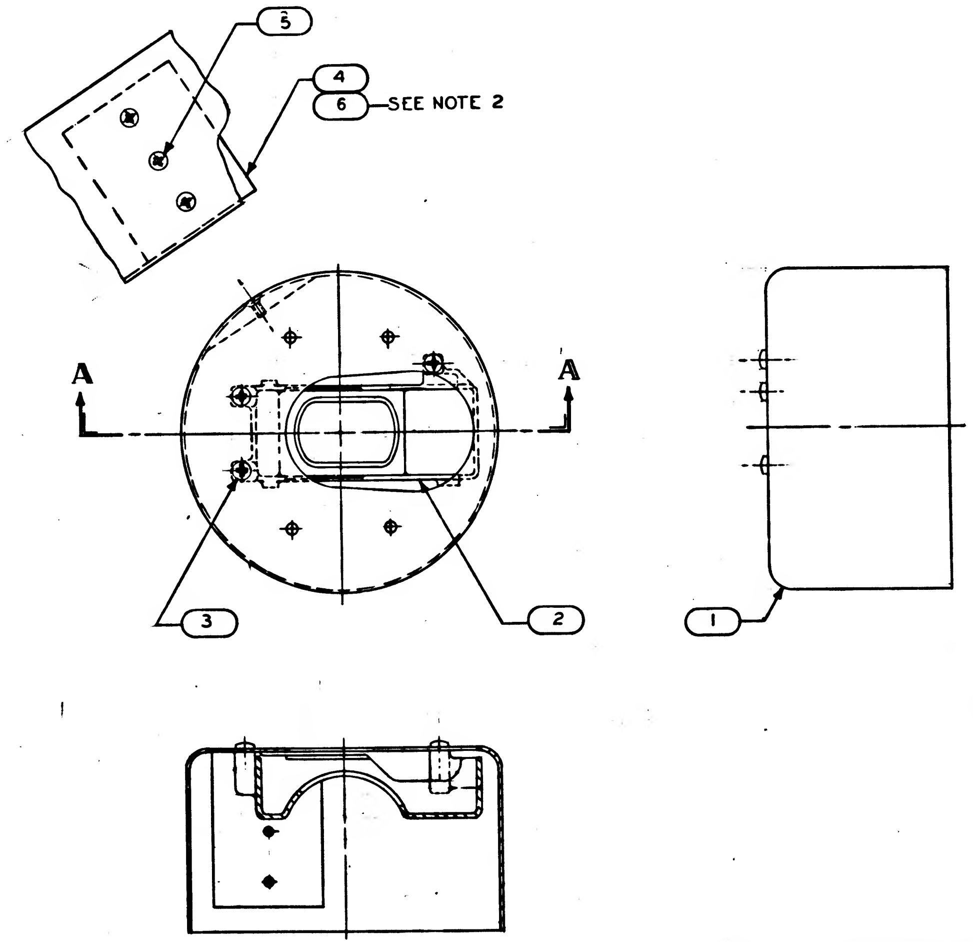
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012547

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVA

15584

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. CEMENT ITEM 4 TO ITEM 1 USING ADHESIVE (ITEM 6) PER ND1002219.
3. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAGGING).



SECTION A-A

✱ PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
6	AR	✱	1011541	74471435001		ADHESIVE, EPOXY			
5	3		NAS1189C04P4L	74455155008		SCREW, SELF LOCKING 100° FLAT HEAD			
4	1		2012137	57386911230		COUNTER WEIGHT			
3	3		NAS1190C04P4L	———		SCREW, SELF-LKG PAN HEAD FULL THD 250° F.			
2	1		2012508	52386910960		BAFFLE, DOVE PRISM, SCT			
1	1		2012545	50386910130		COVER, TELESCOPE HEAD			

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ —— -	+ —— -	+ —— -

DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911330

DRAWN E. DRAPALA DATE 3-3-65
CHECKED J. SULLIVAN 3-25-65
APPROVAL E. Rushm 3-25-65
APPROVAL E. Thorup 4-26-65
NASA APPROVAL W. J. Rhine 4-27-65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER AND BAFFLE,
ASSY OF (SCT)

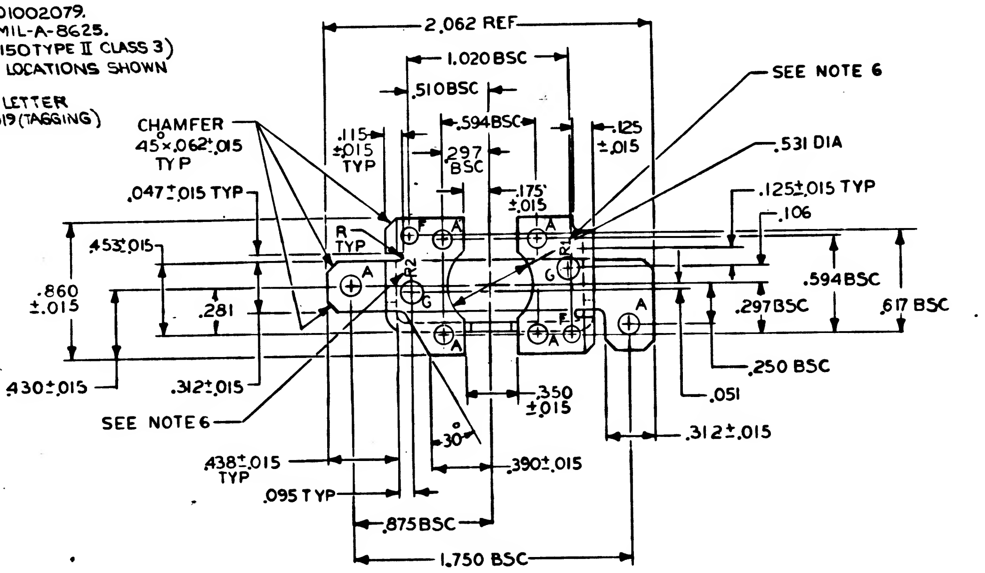
CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012547

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012559

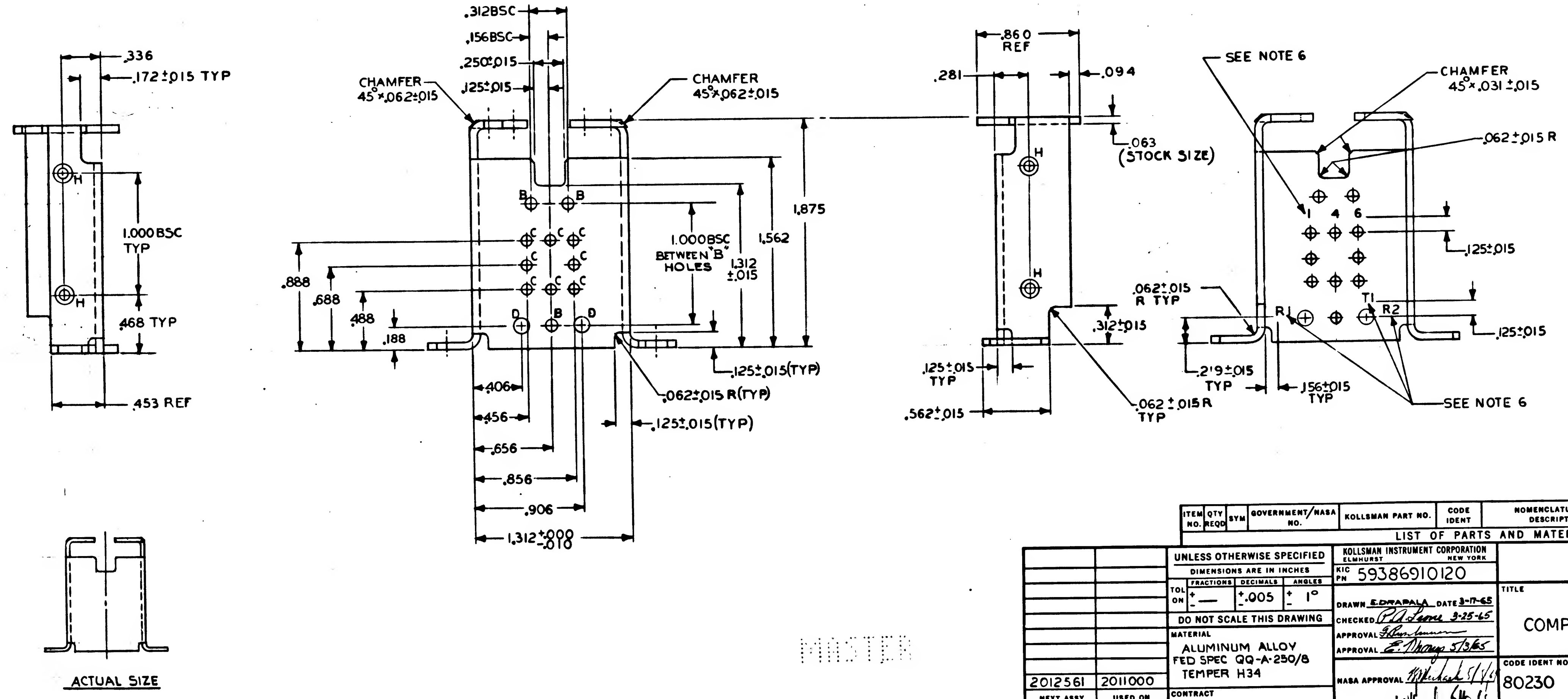
SYM	ZONE	REVISIONS 18865 DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE (SULFURIC) PER MIL-A-8625.
   TYPE II DYED BLACK (KPS-1005A.150 TYPE II CLASS 3)
6. MARK CHARACTERS R1, R2, T1, 1, 4 AND 6 AT LOCATIONS SHOWN IN ACCORDANCE WITH ND1002019.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAGGING)



HOLE DATA

HOLE	DESCRIPTION	QTY	TRUE POSITIONING
A	DR NO.29 (.136) THRU	6	⊕.010 DIA
B	DR NO.41 (.096) THRU	3	⊕.004 DIA
C	DR 3/32 (.0937) THRU	8	——
D	DR 1/8 (.125) THRU	2	——
F	.134±.001 DIA THRU	2	⊕.004 DIA
G	DR 9/64 (.1406) THRU	2	——
H	DR NO.45 (.082) THRU CSK 102° X TO .156 DIA	4	⊕.004 DIA



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012561	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ——	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED SPEC QQ-A-250/8
TEMPER H34

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 59386910120

DRAWN E. DRAPALA DATE 3-17-65
CHECKED P.A. Leone 3-25-65
APPROVAL
APPROVAL E. Thomas 5/3/65
NASA APPROVAL 5/4/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
BRACKET,
COMPONENT MOUNTING

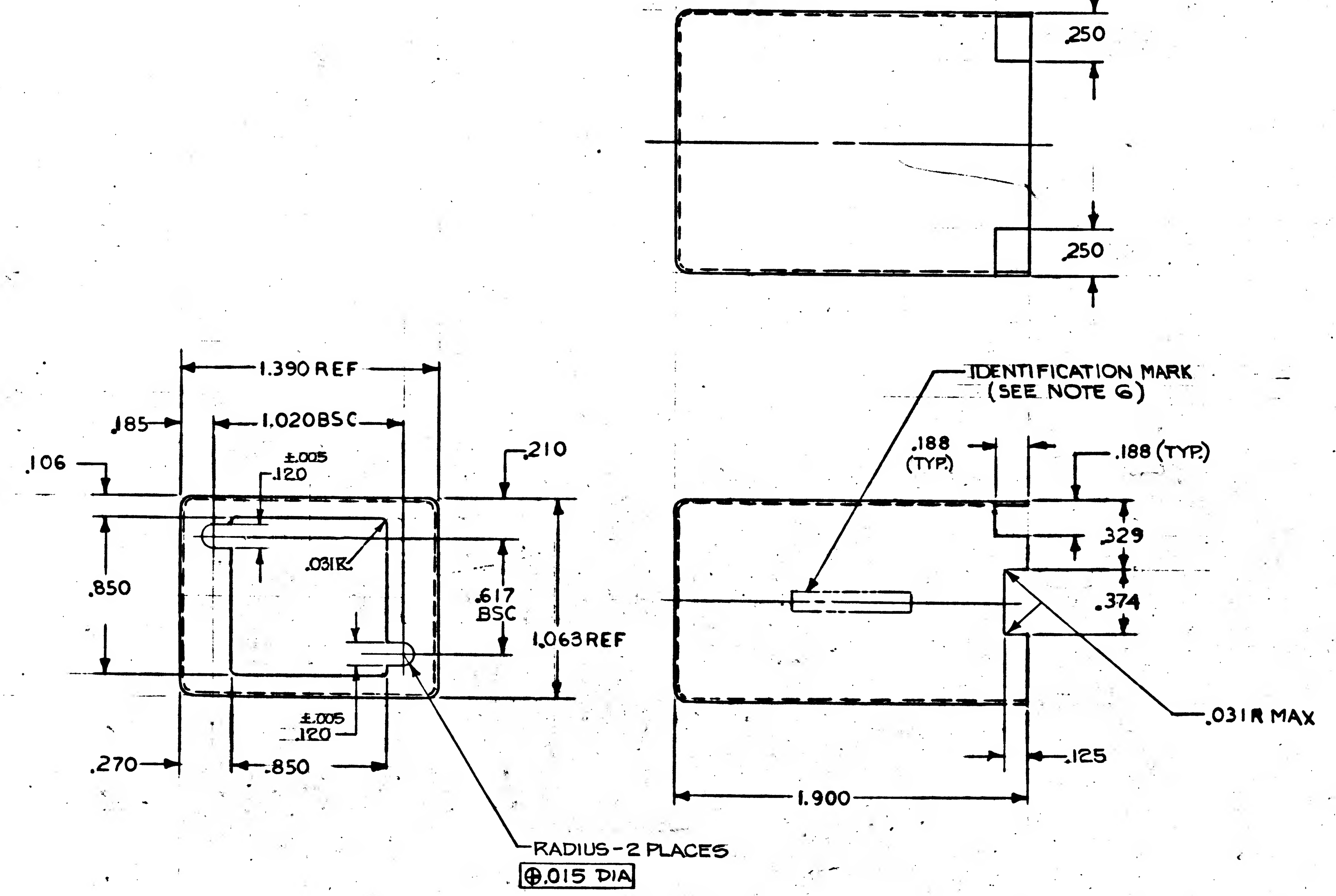
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012559
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012560 A

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE (SULFURIC) PER MIL-A-8625, TYPE II DYED BLACK.
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.

REVISIONS 1/8/65

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
Ⓦ A		REVISED PER TDRR 28677	[illegible]	[illegible]



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012568	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± —

DO NOT SCALE THIS DRAWING

MATERIAL 1010691-10

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 48386910170

DRAWN E. Drapala DATE 3-17-65
CHECKED P. A. Leone 3-25-65
APPROVAL F. Ruschman
APPROVAL [illegible] 5/3/65
NASA APPROVAL [illegible] 5/5/65
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER, MODULE

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012560
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

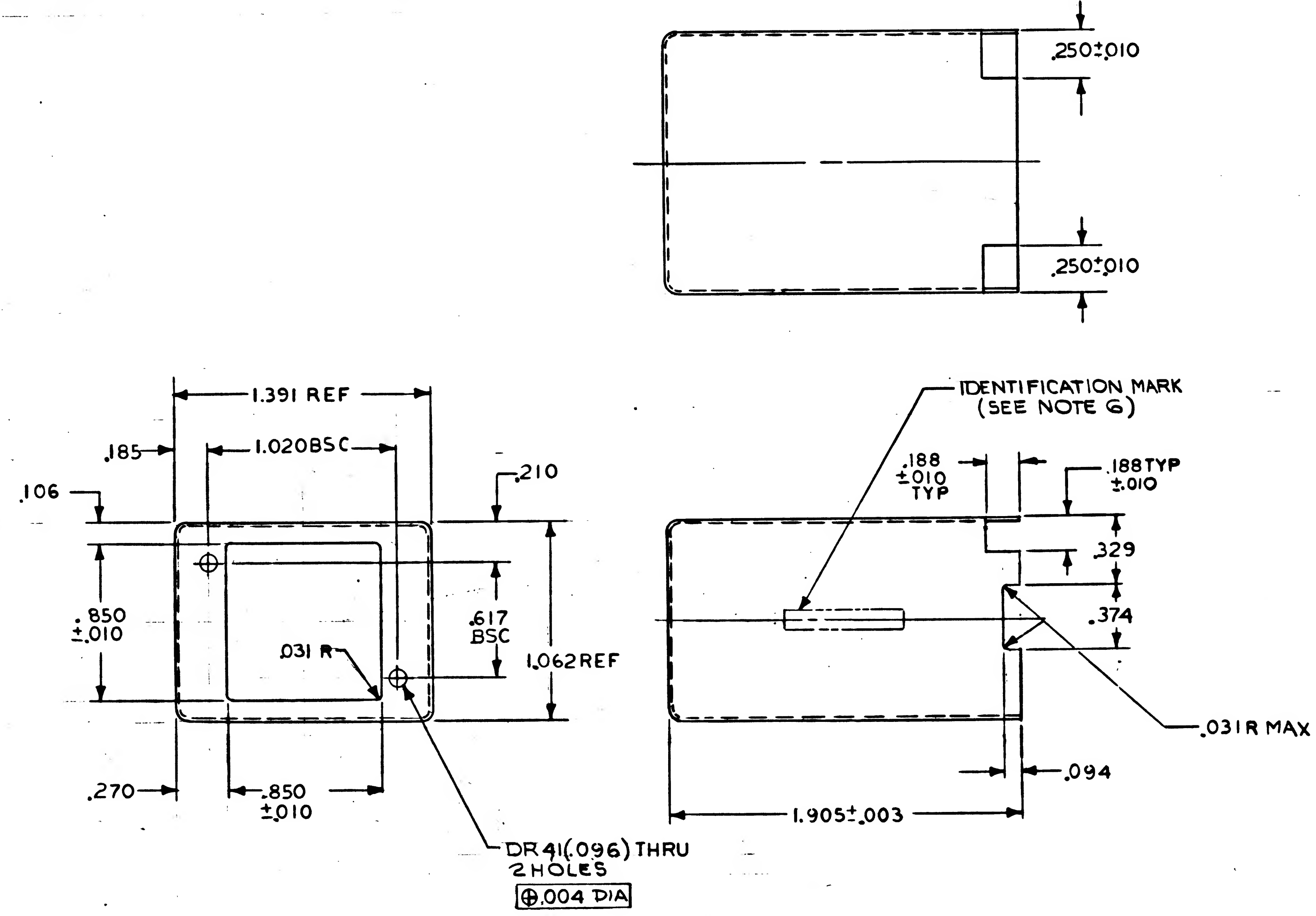
AD-1340

2012560

2012560

REVISIONS 18865				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE (SULFURIC) PER
   MIL-A-8625, TYPE II DYED BLACK (KPS-1005A.150 CLASS 3)
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND
   MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012568	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± —

DO NOT SCALE THIS DRAWING

MATERIAL
1010691-10

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 48386910170

DRAWN E. ORAPALA DATE 3-17-65
CHECKED P. A. Leone 3-25-65
APPROVAL
APPROVAL 5/3/65
NASA APPROVAL 5/3/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER, MODULE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012560
SCALE 2/1	WEIGHT CALC ACTUAL	SHEET 1 OF 1

MASTER

AD-1340

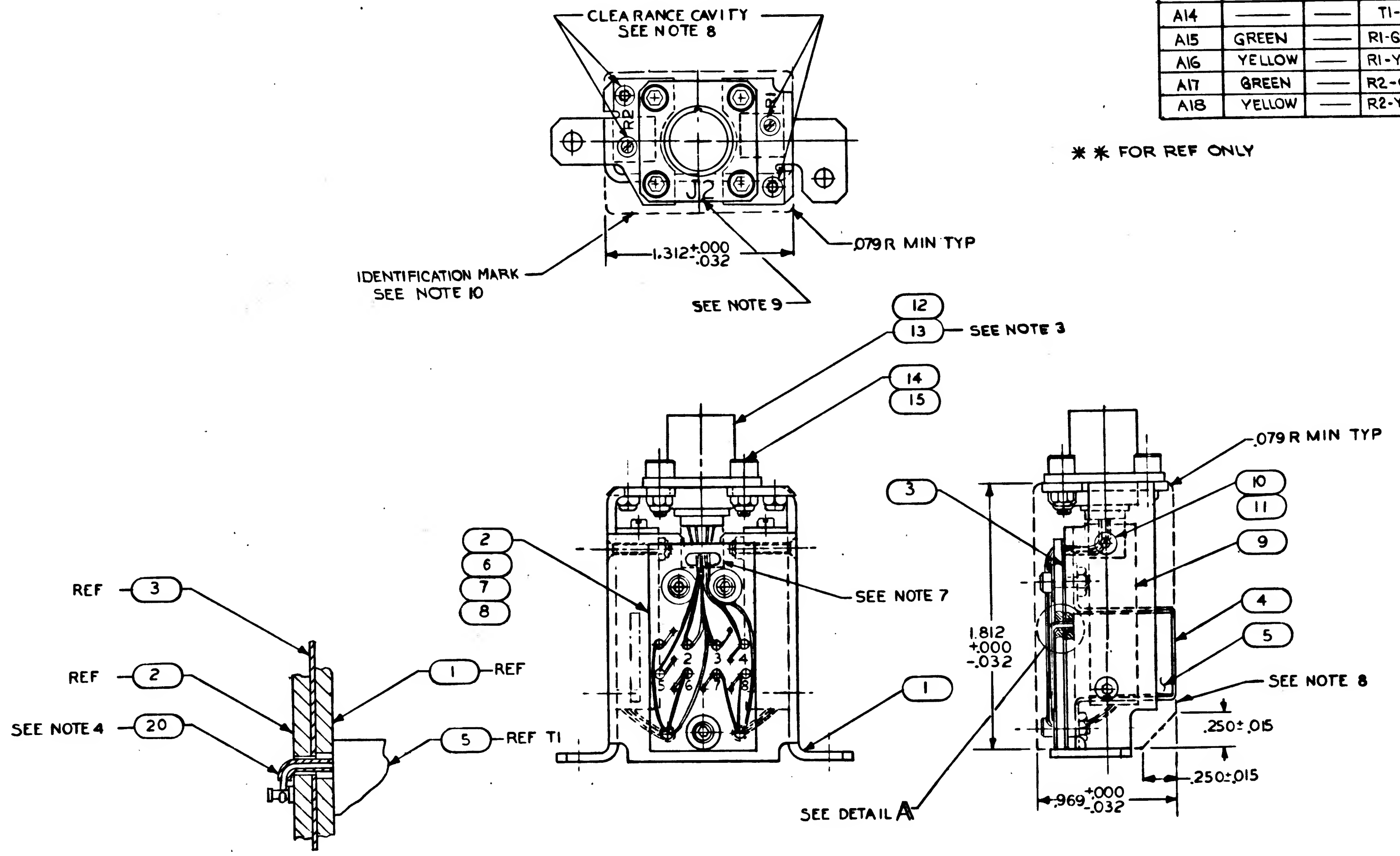
2012567

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. REFER TO WIRING SCHEMATIC, NASA DWG NO. 2012588
3. INSTALL CRIMP STYLE TERMINALS, ITEM 13 IN ACCORDANCE WITH ND1002206.
4. PLACE ITEM 20 ON EIGHT (8) LEADS EMANATING FROM TRANSFORMER (ITEM 5) ONLY.
5. SOLDER CONDUCTORS, PER WIRING LEGEND, IN ACCORDANCE WITH ND1002071.
6. PERFORM CONTINUITY CHECK.
7. POT REAR OF CONNECTOR IN ACCORDANCE WITH ND1002240, METHOD "A" OR "B"
   A. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF 3/16 INCH.
8. ENCAPSULATE MODULE PER ND1002036. CLEARANCE CAVITIES FOR TRIM RESISTORS AND MOUNTING HARDWARE MUST BE FREE OF ENCAPSULATION MATERIAL
9. MARK REF DESIGNATION .125±.020 HIGH IN ACCORDANCE WITH ND1002019.
10. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

WIRING LEGEND				
COND NO.**	COLOR	ITEM NO.	FROM	TO
A1	RED	17	TB1-3	J2-3
A2	BLACK	19	TB1-4	J2-4
A3	BROWN	18	TB1-2	J2-2
A4	ORANGE	16	TB1-5	J2-5
A5	RED	—	R1-RED	J2-1
A6	RED	—	R2-RED	J2-6
A7	—	—	T1-1	TB1-3
A8	—	—	T1-2	TB1-4
A9	—	—	T1-3	TB1-8
A10	—	—	T1-4	TB1-2
A11	—	—	T1-5	TB -7
A12	—	—	T1-6	TB1-1
A13	—	—	T1-7	TB1-5
A14	—	—	T1-8	TB1-6
A15	GREEN	—	R1-GREEN	TB1-8
A16	YELLOW	—	R1-YELLOW	TB1-7
A17	GREEN	—	R2-GREEN	TB1-1
A18	YELLOW	—	R2-YELLOW	TB1-6

** FOR REF ONLY



DETAIL A
SCALE 4/1

* PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

QTY REQD	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	20	*	1006776-22	—		INSULATION SLEEVING, ELECTRICAL			
1	19	*	1010416-11	—		WIRE, ELECTRICAL, STRANDED, INSULATED			
1	18	*	1010416-12	—		↕			
1	17	*	1010416-13	—		↕			
1	16	*	1010416-14	—		WIRE, ELECTRICAL, STRANDED, INSULATED			
4	15	*	1010617-4	—		NUT-HEXAGON, SELF LOCKING			
4	14		MS16995-9	—		SCREW, CAP HEX SOC HD.			
7	13		1010770-1	—		CONTACT, CRIMP TYPE #22			
1	12	*	1010930-117	—		RECEPTACLE, CONNECTOR, ELECTRICAL			
4	11	*	1011750-2	74443128002		NUT, SELF-LOCKING, HEXAGON			
4	10		NAS662C1-6	—		SCREW MACHINE, FLATHEAD			
2	9	*	1010373-17	—		RESISTOR, VARIABLE, TRIMMER			
3	8		MS35649-24	61501051002		NUT, PLAIN, HEXAGON			
3	7		NAS1352C02LL6	—		SCREW, CAP, HEX SOC HD. SELF-LOCKING			
3	6		MS15795-802	—		WASHER, FLAT			
1	5	*	1010651	—		TRANSFORMER, SEXTANT RESOLVER ALIGNMENT			
1	4		2011939	59386910020		BRACKET, TRANSFORMER RETAINING			
1	3		2011937	25386910120		INSULATION, ELECTRICAL			
1	2		2011938	85386910800		TERMINAL BOARD, ASSY OF			
1	1		2012561	85386911340		BRACKET AND NUT, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012568	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —; DECIMALS ± —; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911350
DRAWN E. DRAPALA DATE 3-18-65
CHECKED P. G. Leone 3-25-65
APPROVAL G. E. Costey 4/8/65
APPROVAL E. Thoung 5/3/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
RESOLVER TRIMMING MODULE, ASSY OF

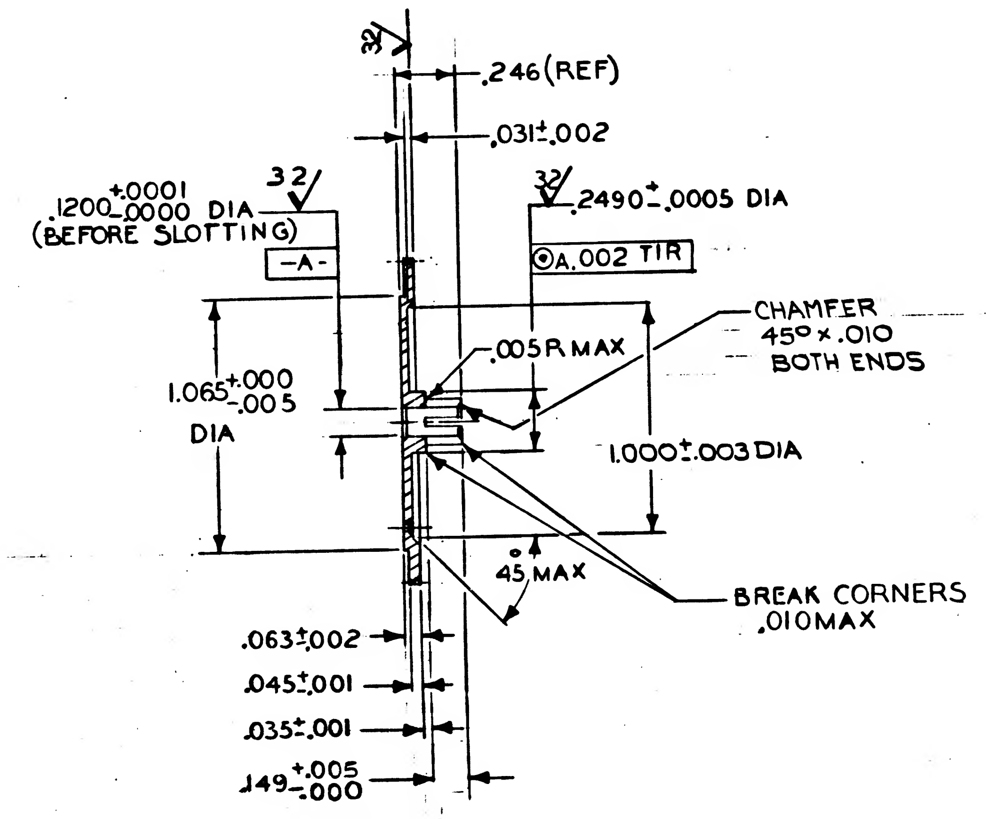
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012567
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

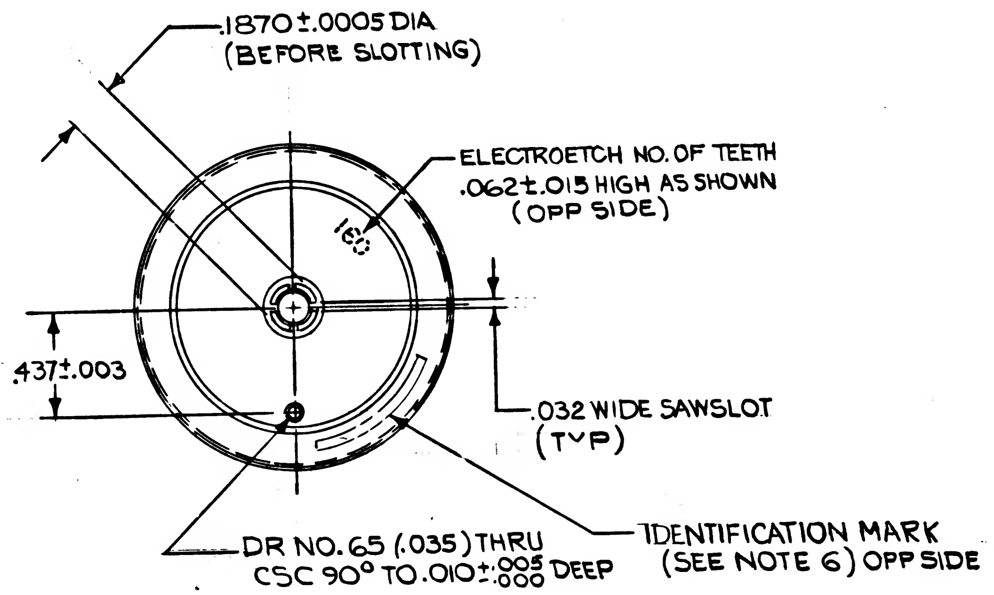
2012576

REVISIONS TDRR 18585				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

SPUR GEAR DATA

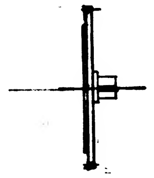
NO. OF TEETH	160
DIAMETRAL PITCH	120
PRESSURE ANGLE	20°
PITCH DIA	1.3333
OUTSIDE DIA	$1.3500^{+.0000}_{-.0015}$
AGMA CLASS	PREC 3D
GEAR TEETH FINISH	32√





6. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019
5. PASSIVATE IN ACCORDANCE WITH MIL-STD-171 TABLE V FINISH NO. 5 (KPS 10051.200)
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
3. UNLESS OTHERWISE SPECIFIED:
   a. 63√ FINISH ALL OVER
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.

NOTES:



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011702	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 416 (Rc 28-32)
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 33386910310

DRAWN B DHAPALA DATE 3-29-65
CHECKED HE Prasny 4-6-65
APPROVAL E Rushmann
APPROVAL E Thorup 4-12-65
NASA APPROVAL W J Rh 4-27-65
MIT APPROVAL W Cuff 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
GEAR SPUR
160T/120P

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012576
SCALE 2/1	WEIGHT CALC ACTUAL	SHEET 1 OF 1

AD-1340

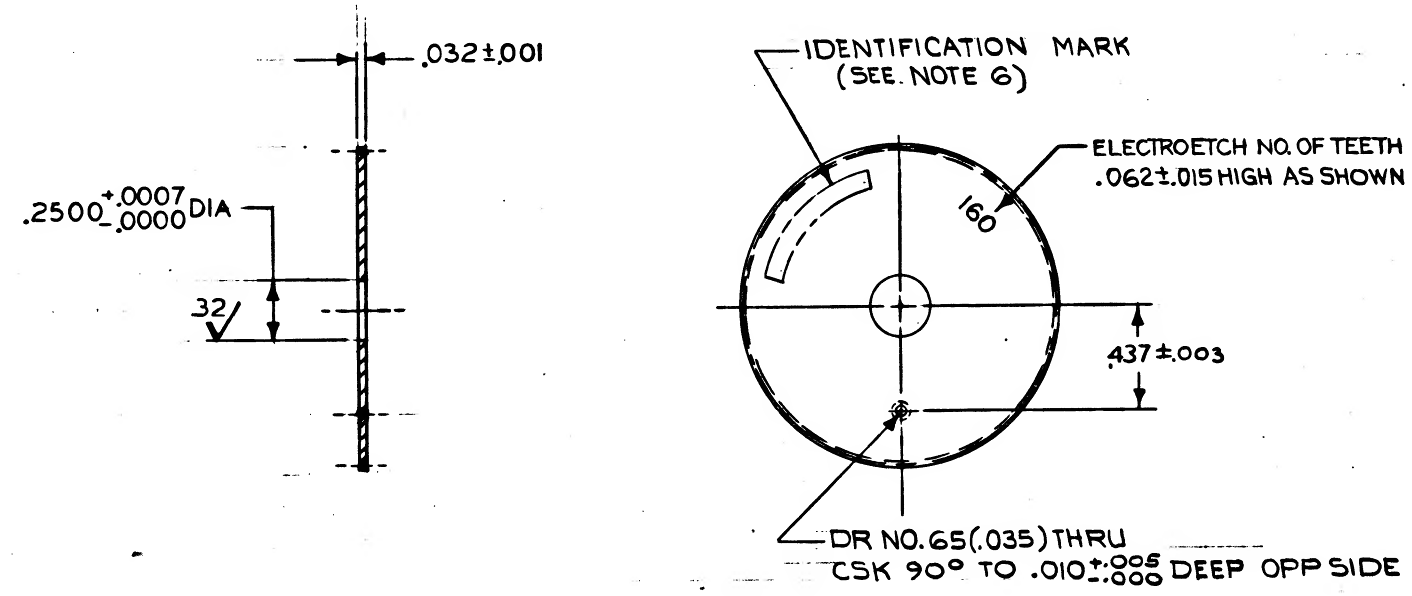
2012577

REVISIONS TDRR 18565

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

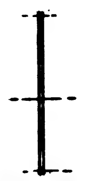
SPUR GEAR DATA

NO. OF TEETH	160
DIAMETRAL PITCH	120
PRESSURE ANGLE	20°
PITCH DIA	1.3313 (SPECIAL)
OUTSIDE DIA	$1.3480^{+.0000}_{-.0015}$ (SPECIAL)
AGMA CLASS	PREC. 1D
GEAR TEETH FINISH	$\sqrt{}^{32}$



6. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.
5. PASSIVATE IN ACCORDANCE WITH MIL-STD-171. TABLE V FINISH NO. 5.4.1 (KPS 10051.200).
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
3. UNLESS OTHERWISE SPECIFIED:
   a $\sqrt{}^{63}$ FINISH ALL OVER
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.

NOTES:



ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011702	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 416 (Rc28-32)

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 33 386910320

DRAWN E. DRAPALA DATE 3-25-65
CHECKED H.E. Pressey 4-6-65
APPROVAL
APPROVAL 4-26-65
NASA APPROVAL 4-27-65
MIT APPROVAL 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
GEAR SPUR
160T / 120P

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012577

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

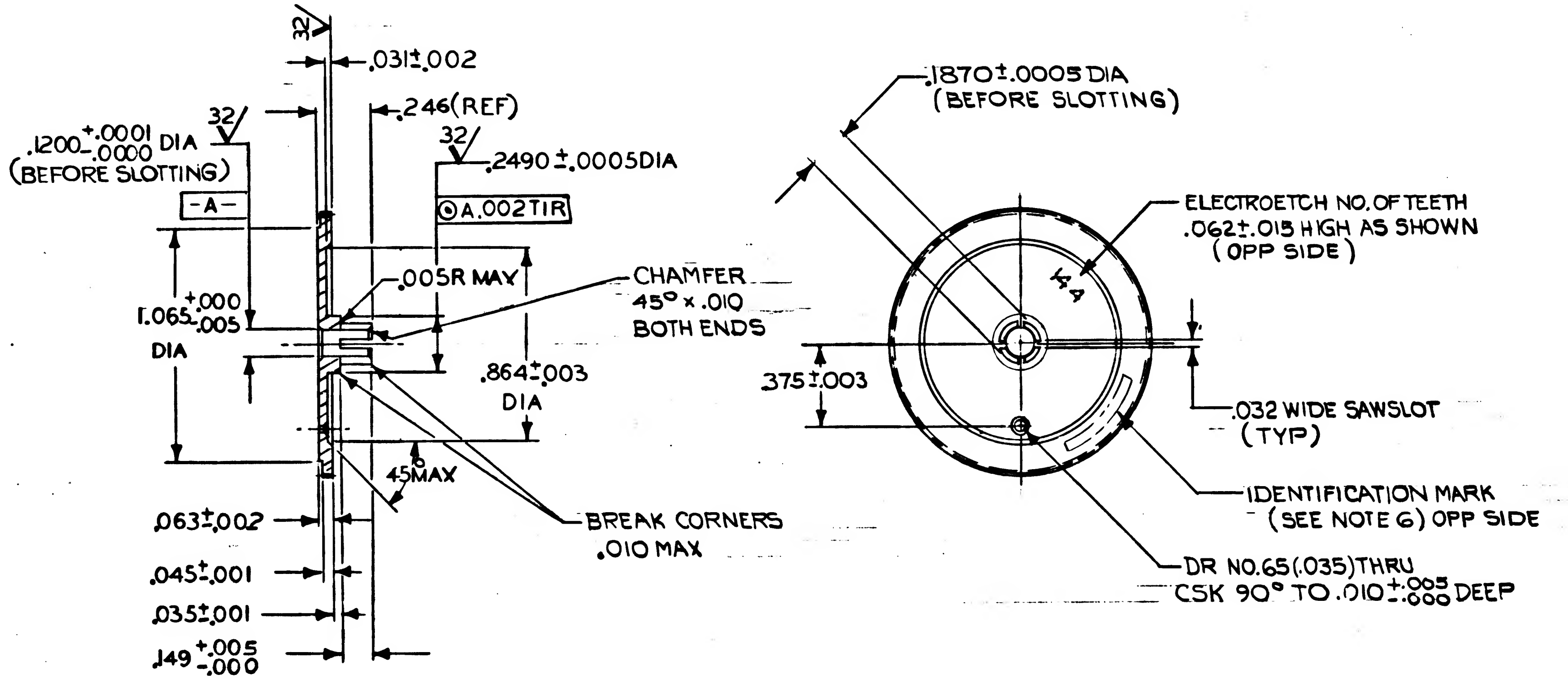
AD-1340

2012578 A

REVISIONS			TDRR 18585	
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 19044	5/11/65	WH

SPUR GEAR DATA

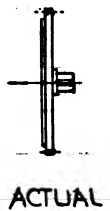
NO. OF TEETH	144
DIAMETRAL PITCH	120
PRESSURE ANGLE	20°
PITCH DIA	1.2000
OUTSIDE DIA	$1.2166^{+.0000}_{-.0015}$
AGMA CLASS	PREC 3D
GEAR TEETH FINISH	$\overset{32}{\checkmark}$



32
.031±.002
.246(REF)
32
$.1200^{+.0001}_{-.0000}$ DIA (BEFORE SLOTTING)
32
.2490±.0005DIA
-A-
⊙A.002TIR
.005R MAX
CHAMFER 45° × .010 BOTH ENDS
$1.065^{+.000}_{-.005}$ DIA
.864±.003 DIA
45°MAX
.063±.002
BREAK CORNERS .010 MAX
.045±.001
.035±.001
$.149^{+.005}_{-.000}$
.1870±.0005 DIA (BEFORE SLOTTING)
ELECTROETCH NO. OF TEETH .062±.015 HIGH AS SHOWN (OPP SIDE)
144
.375±.003
.032 WIDE SAWSLOT (TYP)
IDENTIFICATION MARK (SEE NOTE 6) OPP SIDE
DR NO.65(.035)THRU CSK 90° TO $.010^{+.005}_{-.000}$ DEEP

6. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.
5. PASSIVATE IN ACCORDANCE WITH MIL-STD-171 TABLE V FINISH NO.5 (KPS 10051.200).
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
3. UNLESS OTHERWISE SPECIFIED:
   a. $\overset{63}{\checkmark}$ FINISH ALL OVER
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
1. INTERPRET DWG IN ACCORDANCE WITH ND1002078

NOTES:


ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011703	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —— DECIMALS ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL CORROSION RESISTANT STEEL FED. SPEC QQ-S-763 CLASS 416 (Rc 28-36)
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 33386910330
DRAWN E. DRAPALA DATE 3-24-65
CHECKED HEPressey 4-6-65
APPROVAL
APPROVAL E Thorup 4-12-65
NASA APPROVAL W J Rhine 4-27-65
MIT APPROVAL W Coff 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
GEAR SPUR
144T/120P

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012578
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

AD-1340

MASTER

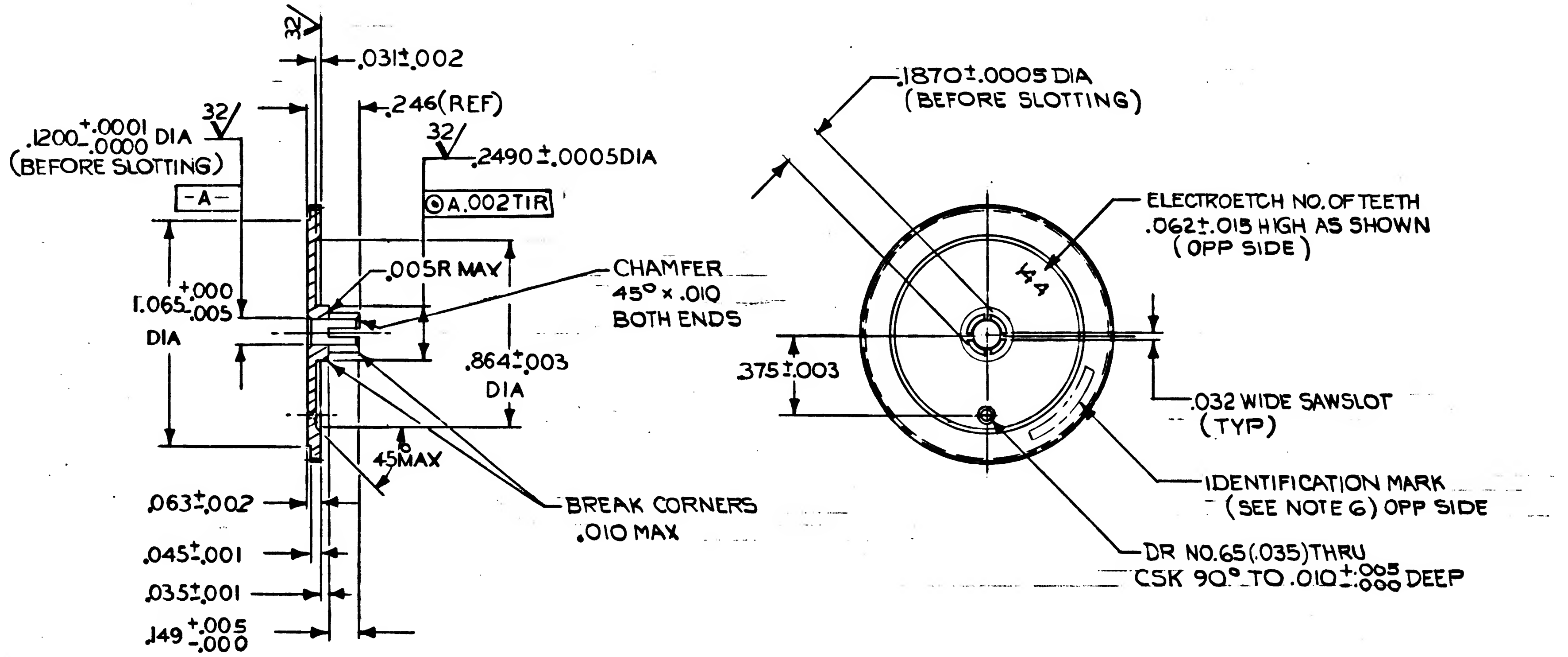
2012578 A

2012578

REVISIONS		TDRR 18585		
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

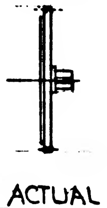
SPUR GEAR DATA

NO. OF TEETH	144
DIAMETRAL PITCH	120
PRESSURE ANGLE	20°
PITCH DIA	1.2000
OUTSIDE DIA	1.2166 $^{+.0000}_{-.0015}$
AGMA CLASS	PREC 3D
GEAR TEETH FINISH	32 √



6. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.
5. PASSIVATE IN ACCORDANCE WITH MIL-STD-171 TABLE V FINISH NO.5 (KPS 10051.200).
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
3. UNLESS OTHERWISE SPECIFIED:
   a 63√ FINISH ALL OVER
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
1. INTERPRET DWG IN ACCORDANCE WITH ND1002078

NOTES:



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011703	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED. SPEC QQ-S-763 CLASS 416 (Rc 28-32

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 33386910330

DRAWN E. DRAPALA DATE 3-24-65
CHECKED HE Pressey 4-6-65
APPROVAL
APPROVAL 4-12-65
NASA APPROVAL W J 4-27-65
MIT APPROVAL W 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
GEAR SPUR
144T/120P

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012578

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1340

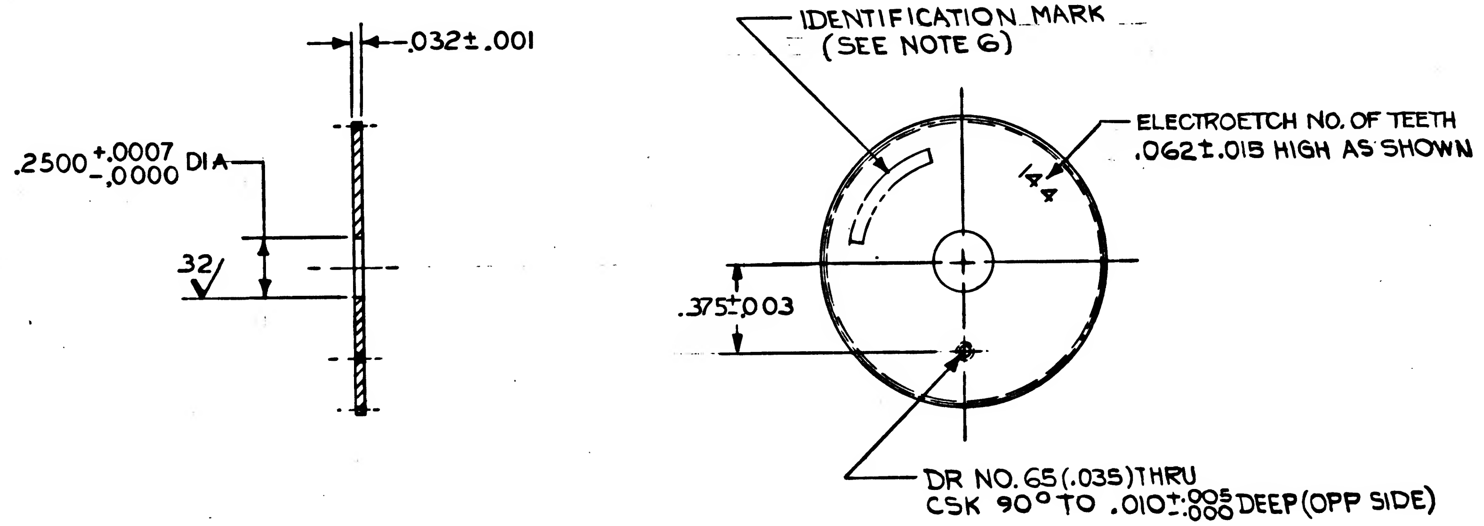
x

2012579

REVISIONS TORR 18585				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

SPUR GEAR DATA

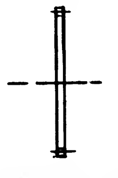
NO. OF TEETH	144
DIAMETRAL PITCH	120
PRESSURE ANGLE	20°
PITCH DIA	1.1980 (SPECIAL)
OUTSIDE DIA	$1.2146^{+.0000}_{-.0015}$ (SPECIAL)
AGMA CLASS	PREC. 1D
GEAR TEETH FINISH	32√



.032±.001
$.2500^{+.0007}_{-.0000}$ DIA
32√
IDENTIFICATION MARK (SEE NOTE 6)
ELECTROETCH NO. OF TEETH .062±.015 HIGH AS SHOWN
144
.375±.003
DR NO. 65 (.035) THRU
CSK 90° TO $.010^{+.005}_{-.000}$ DEEP (OPP SIDE)

6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.
5. PASSIVATE IN ACCORDANCE WITH MIL-STD-171 TABLE V FINISH NO. 54.1 (KPS10051.200)
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
1. INTERPRET DWG IN ACCORDANCE WITH ND1002078.

NOTES:



ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011703	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 416 (Rc 28-32)

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 33386910340

DRAWN E. DRAPALA DATE 3-24-65
CHECKED HE Pressey 4-6-65
APPROVAL
APPROVAL E. Morg 4-12-65
NASA APPROVAL 4-27-65
MIT APPROVAL W Kupfer 27 Apr 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
GEAR SPUR
144T/ 120P

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012579

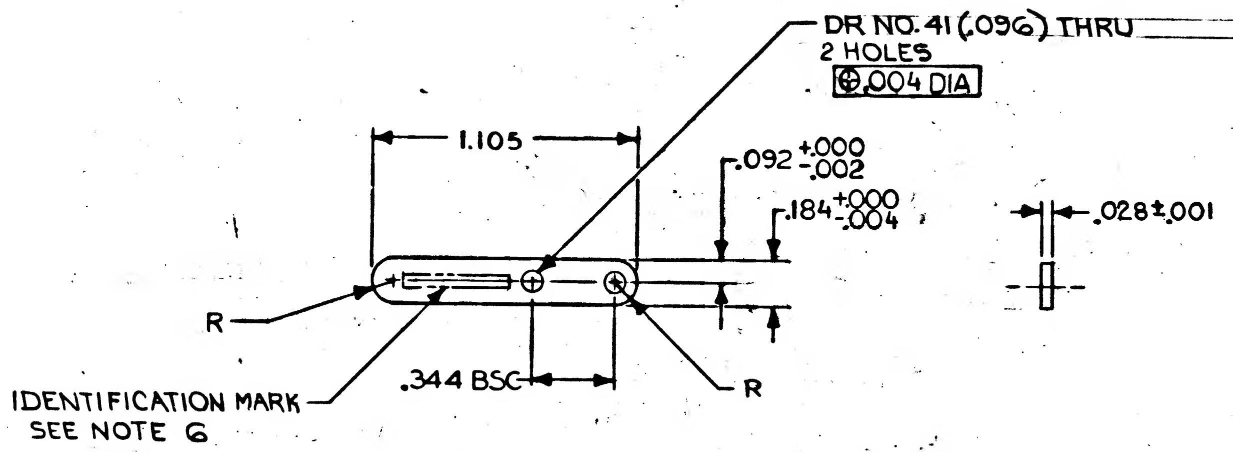
SCALE 2 1 | WEIGHT CALC ACTUAL | SHEET 1 OF 1

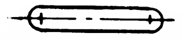
AD-1340

2012634 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 23366				
A		REVISED PER TDRR 26302	2/23/66	WK

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   $\sqrt[63]{}$ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002073.
5. HEAT TREAT BY HEATING TO 900°F ±10°F FOR 1 HOUR AND AIR COOL.
6. PASSIVATE PER MIL-STD-171 TABLE V.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.




ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL MIL-S-25043 CLASS 17-7PH, COND. C. HEAT TREAT PER NOTE 5.

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 56386910610

DRAWN E. DRAPALA DATE 6-18-65
CHECKED J. SULLIVAN 7-21-65
APPROVAL S. Rindmann 10/1/65
APPROVAL E. Thomp 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 10/8/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPRING, FLAT

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012634
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

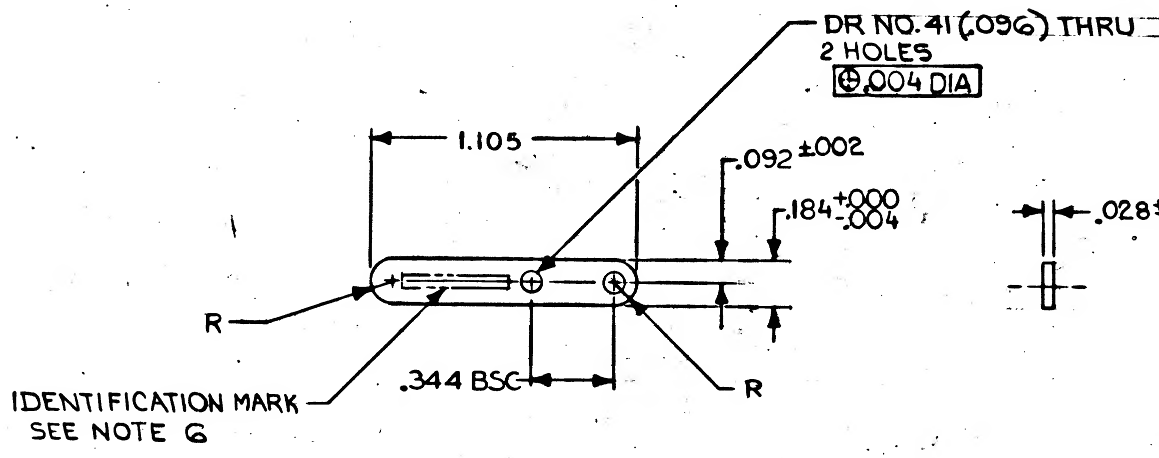
AD-1340

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   $\overset{63}{\surd}$FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT BY HEATING TO 900°F ±10°F FOR 1 HOUR AND AIR COOL.
6. PASSIVATE PER MIL-STD-171 TABLE V.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

B	2012634

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26302	2/23/66	WK
B		REVISED PER TDRR 27188	3/22/66	WK



ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL CORROSION RESISTANT STEEL MIL-S-25043 CLASS 17-7PH, COND. C. HEAT TREAT PER NOTE 5.
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 56386910610

DRAWN E. DRAPALA DATE 6-15-65
CHECKED J. SULLIVAN 7-21-65
APPROVAL 10/19/65
APPROVAL 10/18/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPRING, FLAT

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012634

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1340

10/18/54

2012634 D

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT BY HEATING TO 900°F ±10°F FOR 1 HOUR AND AIR COOL.
6. PASSIVATE PER MIL-STD-171 TABLE V.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAG AND BAG)

REVISIONS TDRR 23306				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26302	2/23/66	LK
B		REVISED PER TDRR 27188	3/22/66	WK
C		REVISED PER TDRR 31014	9/8/66	[illegible]
D		REVISED PER TDRR 36291	6/5/68	771P 6/24/68

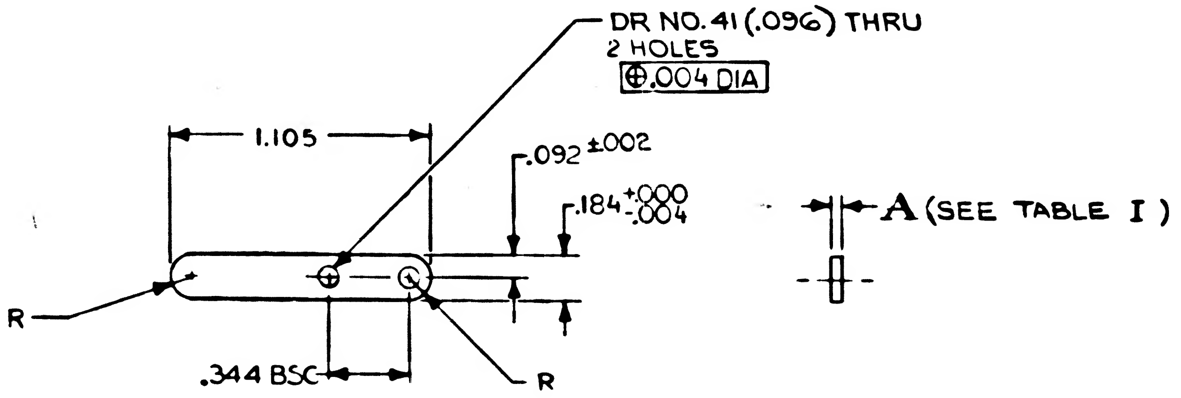


TABLE I	
NASA DWG NO.	A
2012634-000	.028±.001
2012634-001	.020±.001

ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012796	2015000
2012797	2015000
2012695	
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL MIL-S-25043 CLASS 17-7PH, COND. C. HEAT TREAT PER NOTE 5.

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 56386910610

DRAWN E DRAPALA DATE 6-15-65
CHECKED J. SULLIVAN 7-21-65
APPROVAL [illegible] 10/1/67
APPROVAL [illegible] 10/6/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPRING, FLAT

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012634
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

AD-1340

2012634 D

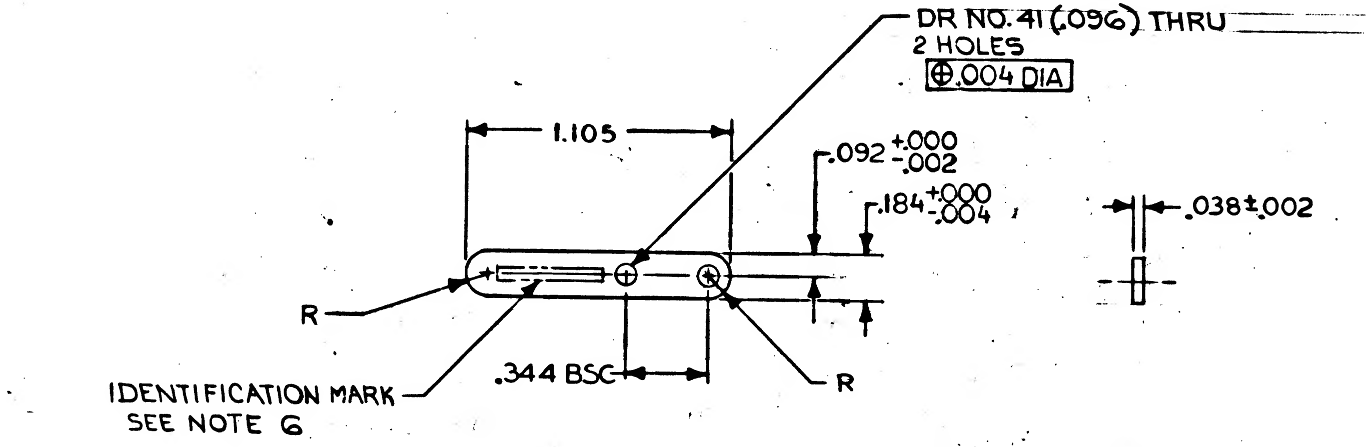
10/16/65 [illegible]

2012634

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63/ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. PASSIVATE PER MIL-STD-171 TABLE V.

6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.



ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 416. COND H

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 56386910610

DRAWN E. DRAPALA DATE 6-15-65
CHECKED J. SULLIVAN 7-21-65
APPROVAL [illegible] 10/14/65
APPROVAL [illegible] 10/15/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPRING, FLAT

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012634
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

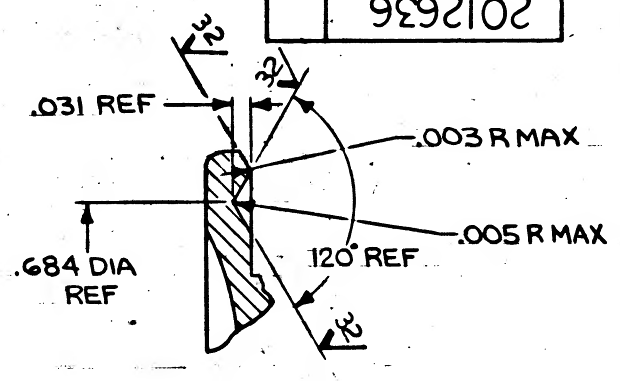
2012636

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		REVISIONS TDRR 23366		

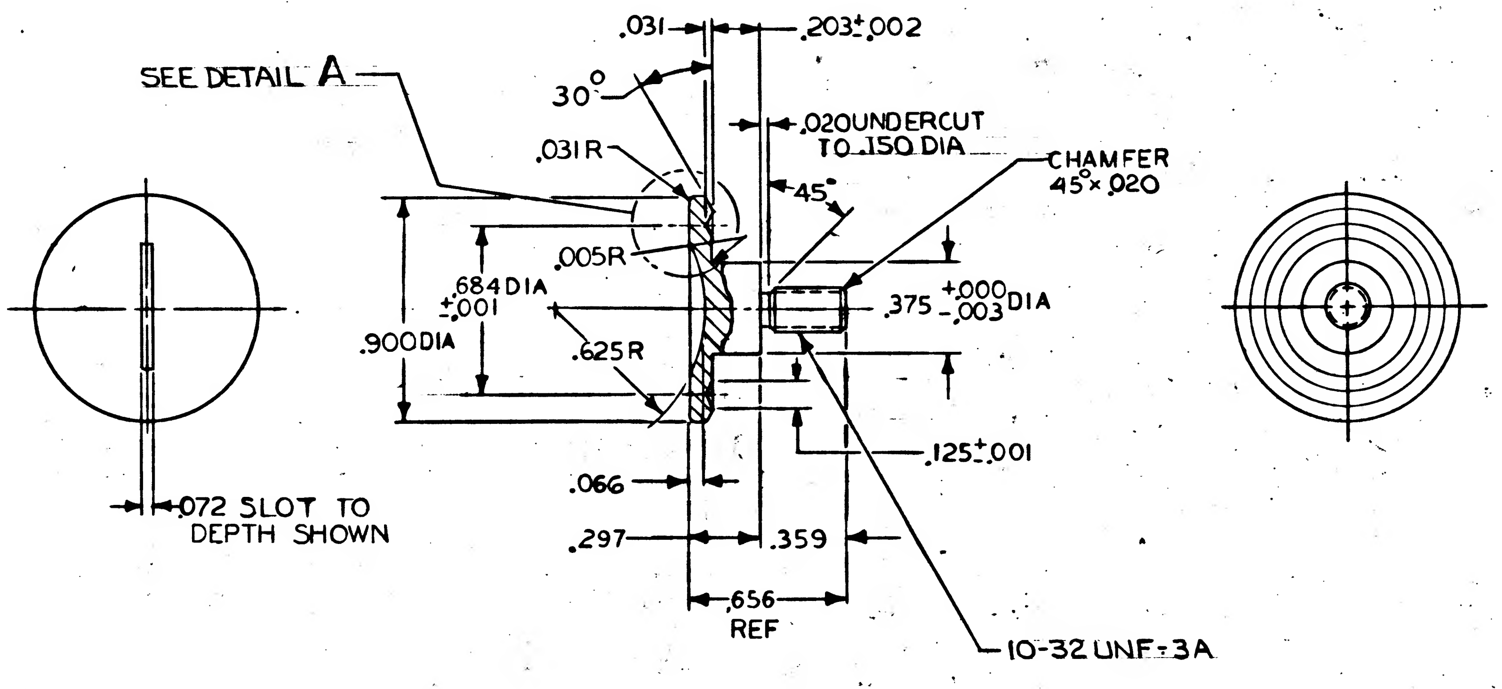
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:

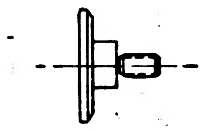
   63/ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT TO Rc57-MIN. IN ACCORDANCE WITH ND1002114.
6. PASSIVATE PER MIL-STD-171 TABLE V.

7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (TAGGING)



DETAIL A
SCALE 4/1





ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED. SPEC QQ-S-763 CLASS 440C COND A

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 57386911670

DRAWN E. DRAPALA DATE 6-16-65
CHECKED J. SULLIVAN 7-21-65
APPROVAL E. Rumbaugh 10/14/65
APPROVAL E. Thomas 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCREW, SHOULDER

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012636

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1340

10/18/65 m

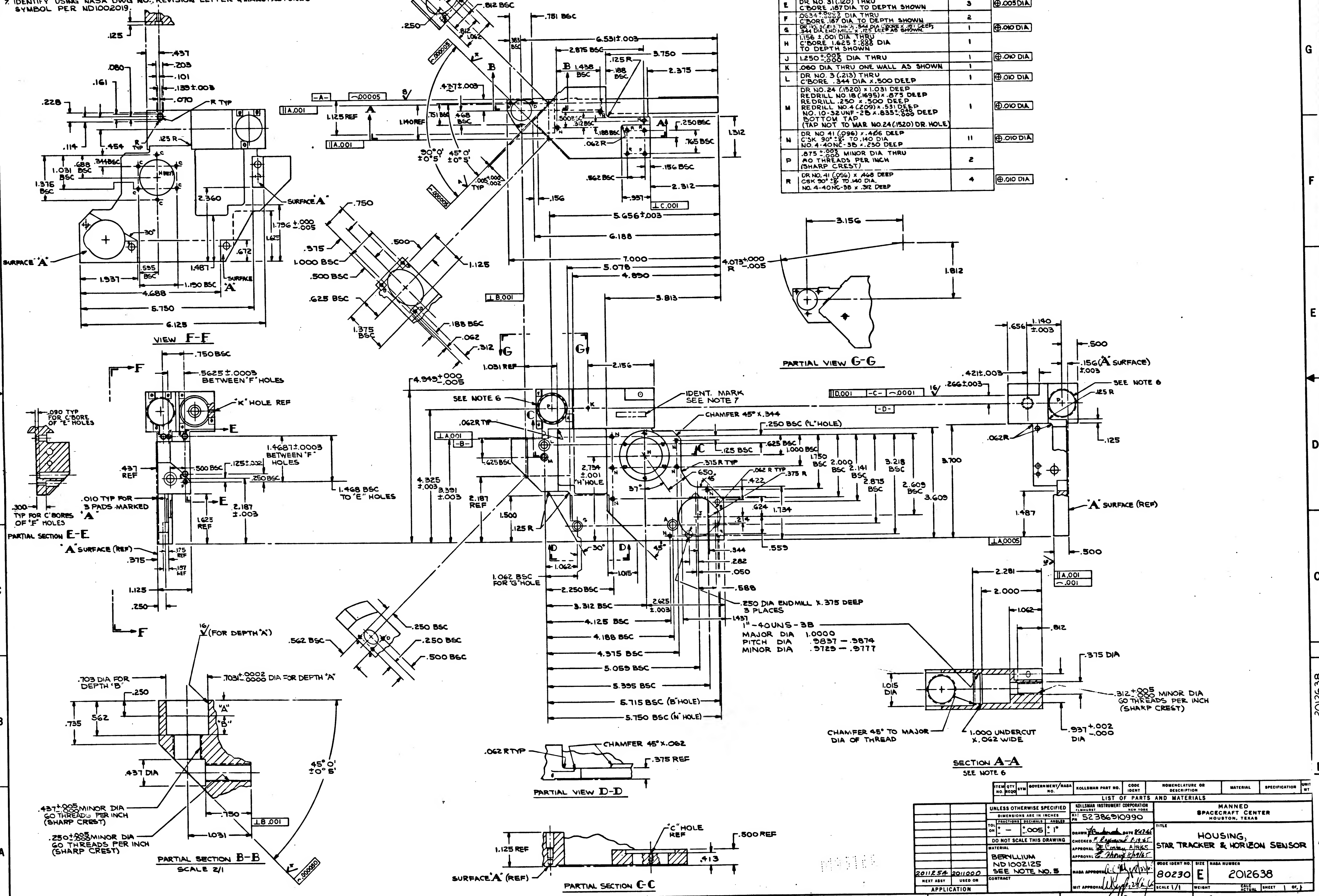
2012638

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL

NOTES
1. INTERPRET ~~DWG~~ IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. UNLESS OTHERWISE SPECIFIED
   a) 63/√ FINISH ALL OVER
   b) BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. HEAT TREAT (STABILIZE & STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
6. BLACK ANODIZE IN ACCORDANCE WITH ND1002017 TYPE 1 ENTIRE INNER SURFACES OF "P" HOLES AND ENTIRE INNER SURFACES OF SECTION A-A. MASKING OF "K" HOLE OPTIONAL.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURES SYMBOL PER ND1002019.

HOLE CHART

HOLE	DESCRIPTION	QUANTITY	
A	DR NO.3 (.213) THRU C'BORE .344 x .203 DEEP	1	⊕.010 DIA
B	DR NO.28 (.1405) x .406 DEEP REDRILL NO.18 (.1695) x .290 DEEP C'SK 90° $^{+0°}_{-8°}$ TO .218 DIA. NO. 10-32 UNF-2B x .250 $^{+.040}_{-.000}$ DEEP BOTTOM TAP (TAP NOT TO MAR NO.28 (.1405) DR. HOLE)	1	⊕.010 DIA
C	DR NO.49 (.0730) THRU C'SK 90° $^{+0°}_{-8°}$ TO .109 DIA. (OPP SIDE) NO. 2-56 NC-3B (OPP SIDE) x .188 DEEP	6	⊕.010 DIA
D	DR NO.49 (.0730) x .343 DEEP C'SK 90° $^{+0°}_{-8°}$ TO .109 DIA NO. 2-56 NC-3B x .200 DEEP	12	⊕.004 DIA
E	DR NO. 31 (.120) THRU C'BORE .187 DIA TO DEPTH SHOWN	3	⊕.005 DIA
F	.0634 $^{+.0005}_{-.0000}$ DIA THRU C'BORE .187 DIA TO DEPTH SHOWN	2	
G	DR NO. 3 (.213) THRU; .344 DIA C'BORE x .187 DEEP; .344 DIA END MILL x .125 DEEP AS SHOWN.	1	⊕.010 DIA
H	1.156 ±.001 DIA THRU C'BORE 1.625 $^{+.003}_{-.000}$ DIA TO DEPTH SHOWN	1	
J	1.250 $^{+.005}_{-.000}$ DIA THRU	1	⊕.010 DIA
K	.060 DIA THRU ONE WALL AS SHOWN	1	
L	DR NO. 3 (.213) THRU C'BORE .344 DIA x .500 DEEP	1	⊕.010 DIA
M	DR NO.24 (.1520) x 1.031 DEEP REDRILL NO.18 (.1695) x .875 DEEP REDRILL .250 x .500 DEEP REDRILL NO.4 (.209) x .531 DEEP NO. 10-32 UNF-2B x .835 $^{+.040}_{-.000}$ DEEP BOTTOM TAP (TAP NOT TO MAR NO.24 (.1520) DR. HOLE)	1	⊕.010 DIA
N	DR NO 41 (.096) x .406 DEEP C'SK 90° $^{+0°}_{-8°}$ TO .140 DIA NO. 4-40 NC-3B x .250 DEEP	11	⊕.010 DIA
P	.875 $^{+.005}_{-.000}$ MINOR DIA THRU 40 THREADS PER INCH (SHARP CREST)	2	
R	DR NO. 41 (.096) x .468 DEEP CSK 90° $^{+0°}_{-8°}$ TO .140 DIA. NO. 4-40 NC-3B x .312 DEEP	4	⊕.010 DIA



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011254	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
ND1002125
SEE NOTE NO. 5
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386910990
DRAWN F. Budzinski DATE 8/4/65
CHECKED F. Raymond 8-19-65
APPROVAL C.E. Cooney 8/19/65
APPROVAL E. Zhang 8/29/65
NASA APPROVAL 9/23/65
MIT APPROVAL 24 Aug 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING,
STAR TRACKER & HORIZON SENSOR

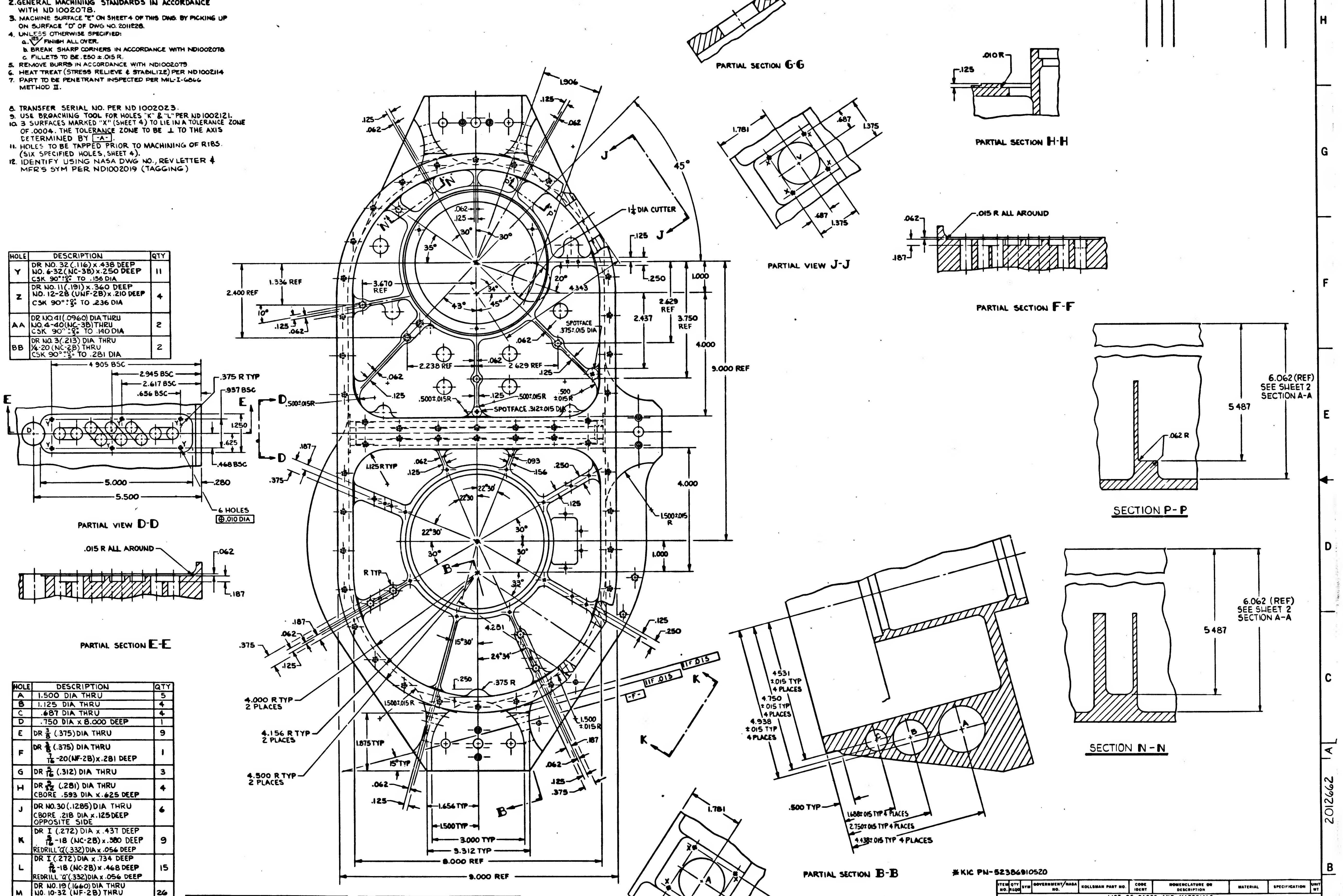
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012638
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012638

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. MACHINE SURFACE "E" ON SHEET 4 OF THIS DWG. BY PICKING UP ON SURFACE "D" OF DWG NO. 2011228.
4. UNLESS OTHERWISE SPECIFIED:
   a. 125√ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
   c. FILLETS TO BE .250 ± .015 R.
5. REMOVE BURRS IN ACCORDANCE WITH ND1002079
6. HEAT TREAT (STRESS RELIEVE & STABILIZE) PER ND1002114
7. PART TO BE PENETRANT INSPECTED PER MIL-I-6866 METHOD II.

8. TRANSFER SERIAL NO. PER ND 1002023.
9. USE BROACHING TOOL FOR HOLES "K" & "L" PER ND1002121.
10. 3 SURFACES MARKED "X" (SHEET 4) TO LIE IN A TOLERANCE ZONE OF .0004. THE TOLERANCE ZONE TO BE ⊥ TO THE AXIS DETERMINED BY -A-.
11. HOLES TO BE TAPPED PRIOR TO MACHINING OF RIBS. (SIX SPECIFIED HOLES, SHEET 4).
12. IDENTIFY USING NASA DWG NO., REV LETTER & MFR'S SYM PER ND1002019 (TAGGING)

HOLE	DESCRIPTION	QTY
Y	DR NO. 32 (.116) x .438 DEEP NO. 6-32 (NC-3B) x .250 DEEP CSK 90° $^{+0°}_{-5°}$ TO .156 DIA	11
Z	DR NO. 11 (.191) x .360 DEEP NO. 12-28 (UNF-2B) x .210 DEEP CSK 90° $^{+0°}_{-5°}$ TO .236 DIA	4
AA	DR NO. 41 (.0960) DIA THRU NO. 4-40 (NC-3B) THRU CSK 90° $^{+0°}_{-5°}$ TO .140 DIA	2
BB	DR NO. 3 (.213) DIA THRU 1/4-20 (NC-2B) THRU CSK 90° $^{+0°}_{-5°}$ TO .281 DIA	2



HOLE	DESCRIPTION	QTY
A	1.500 DIA THRU	5
B	1.125 DIA THRU	4
C	.687 DIA THRU	4
D	.750 DIA x 8.000 DEEP	1
E	DR 3/8 (.375) DIA THRU	9
F	DR 3/8 (.375) DIA THRU 7/16-20 (NF-2B) x .281 DEEP	1
G	DR 5/16 (.312) DIA THRU	3
H	DR 9/32 (.281) DIA THRU CBORE .593 DIA x .625 DEEP	4
J	DR NO. 30 (.1285) DIA THRU CBORE .218 DIA x .125 DEEP OPPOSITE SIDE	6
K	DR I (.272) DIA x .437 DEEP 5/16-18 (NC-2B) x .380 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	9
L	DR I (.272) DIA x .734 DEEP 5/16-18 (NC-2B) x .468 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	15
M	DR NO. 19 (.1660) DIA THRU NO. 10-32 (NF-2B) THRU CSK 90° $^{+0°}_{-5°}$ TO .218 DIA	26
N	DR NO. 19 (.1660) DIA x .375 DEEP NO. 10-32 (NF-2B) x .254 DEEP CSK 90° $^{+0°}_{-5°}$ TO .218 DIA	22
P	DR NO. 27 (.1440) DIA x .500 DEEP NO. 8-32 (NC-3B) x .328 DEEP CSK 90° $^{+0°}_{-5°}$ TO .187 DIA	1
R	DR NO. 32 (.1160) DIA x .513 DEEP NO. 6-32 (NC-3B) x .375 DEEP CSK 90° $^{+0°}_{-5°}$ TO .156 DIA	2

HOLE	DESCRIPTION	QTY
S	DR NO. 41 (.0960) DIA x .336 DEEP NO. 4-40 (NC-3B) x .224 DEEP CSK 90° $^{+0°}_{-5°}$ TO .140 DIA	20
T	DR NO. 49 (.0730) DIA x .336 DEEP NO. 2-56 (NC-3B) x .250 DEEP CSK 90° $^{+0°}_{-5°}$ TO .109 DIA	2
U	.1240 $^{+.0005}_{-.0000}$ DIA x .312 DEEP 32√	1
V	1.375 DIA THRU	1

HOLE	DESCRIPTION	QTY
W	DR 7/32 (.218) DIA x .410 DEEP 1/4-20 (NC-2B) x .310 DEEP REDRILL H (.266) x .060 DEEP	4
X	DR NO. 32 (.1160) DIA x .278 DEEP NO. 6-32 (NC-3B) x .200 DEEP (MIN) (BOTTOM TAP) CSK 90° $^{+0°}_{-5°}$ TO .156 DIA DO NOT BREAK THRU ON TAP DRILL	8

A 2012662

REVISIONS 2.860

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25125	1/19/66	WK

*KIC PN-52386910520

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2011228 *
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN Y. AMATO DATE 8-10-65
CHECKED [illegible] 8-11-65
APPROVAL [illegible] 8/14/65
APPROVAL E. [illegible] 8/25/65
NASA APPROVAL C.C. Metzger
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

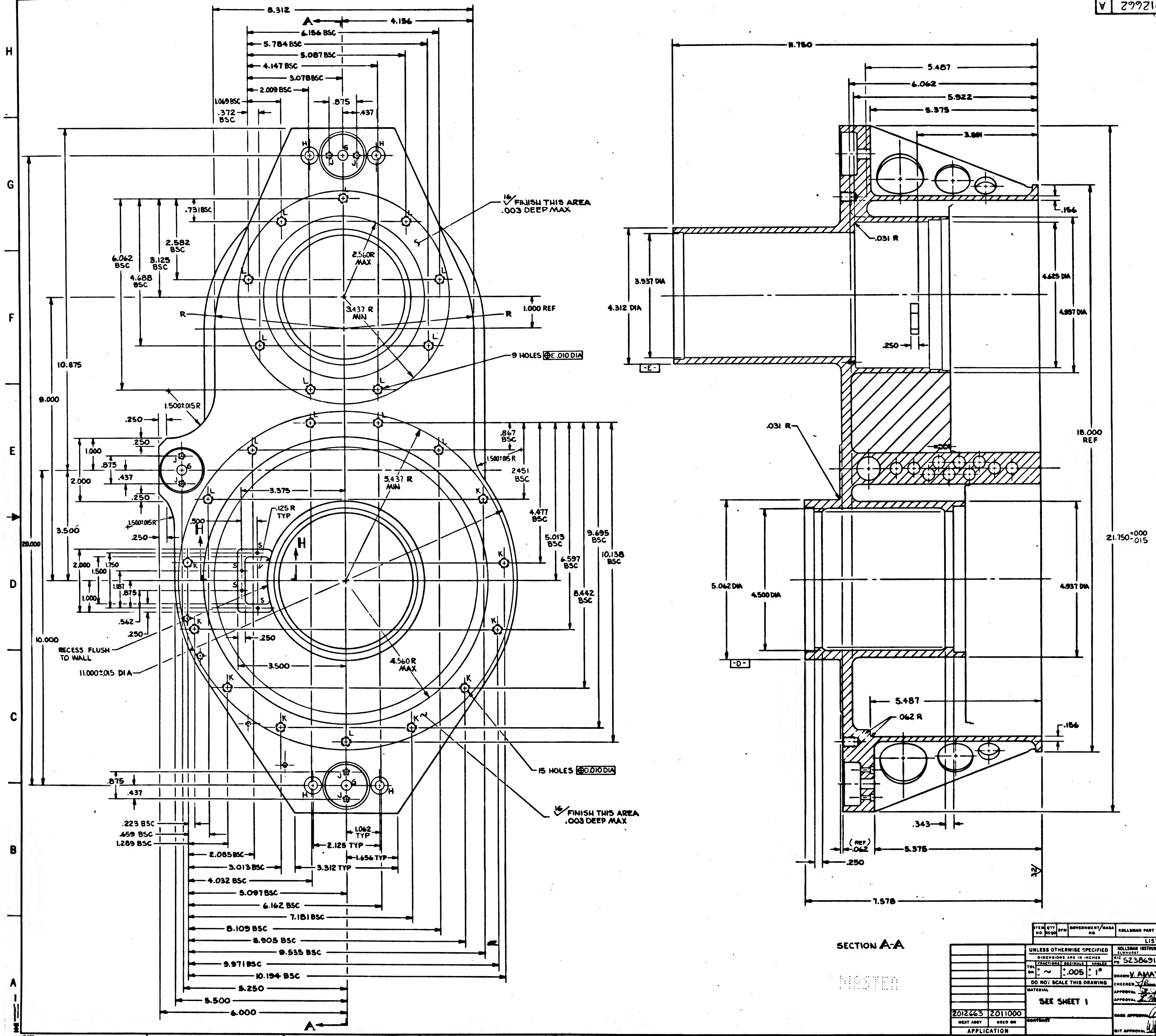
TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET
OF 4

2012662

A 2012662

REVISIONS 21860				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25125	1/18/66	WK



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000

DRAWN V. AMATO DATE 8-10-65
CHECKED 8-11-65
APPROVAL 8/11/65
APPROVAL 8/11/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

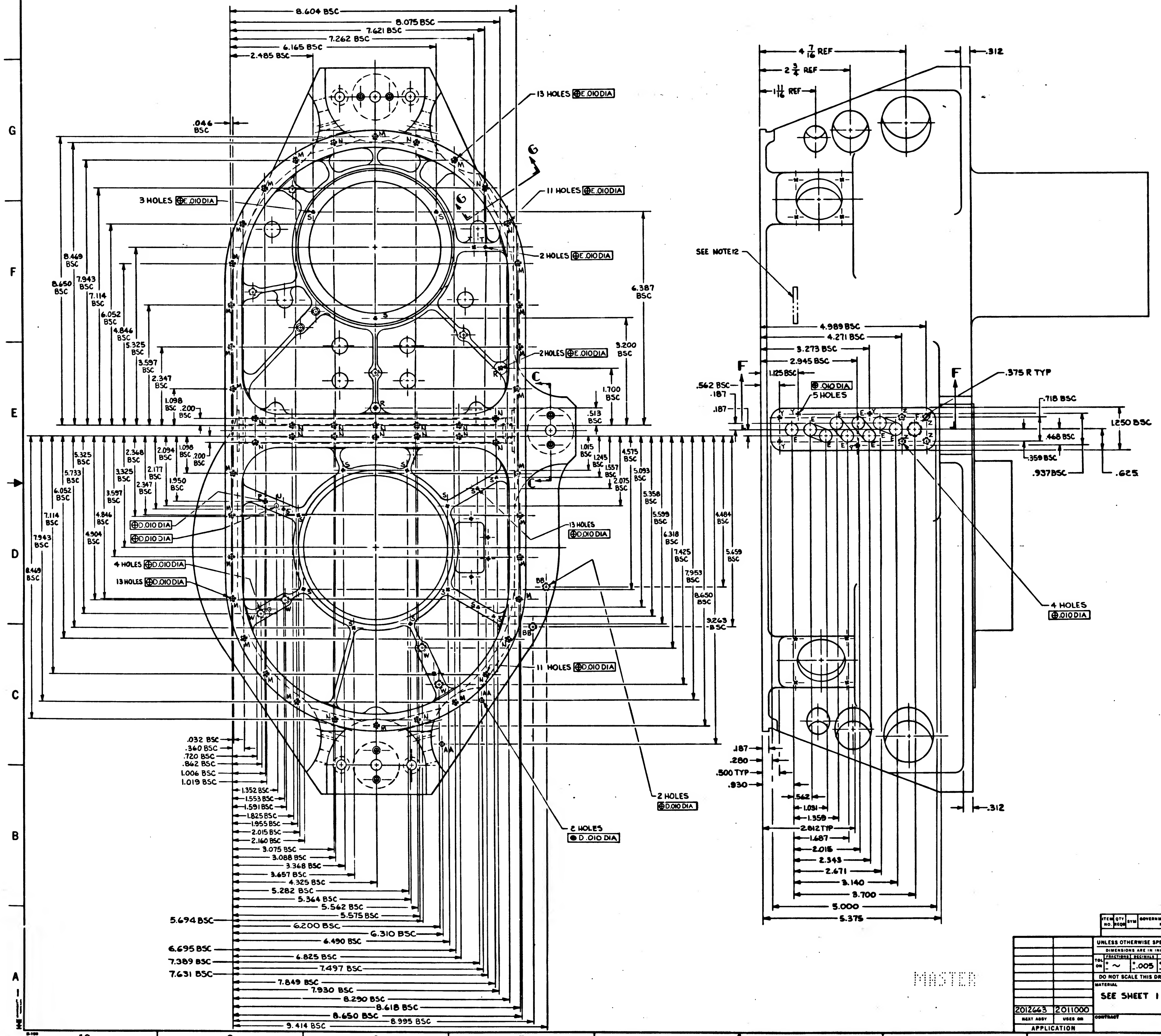
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 4

2012662

A	2012662

REVISIONS 21860

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25125	1/18/66	WK



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USES ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000

DRAWN V AMATO DATE 8-10-65
CHECKED 8-11-65
APPROVAL 8/11/65
APPROVAL E. 8/11/65
NASA APPROVAL G. C.
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

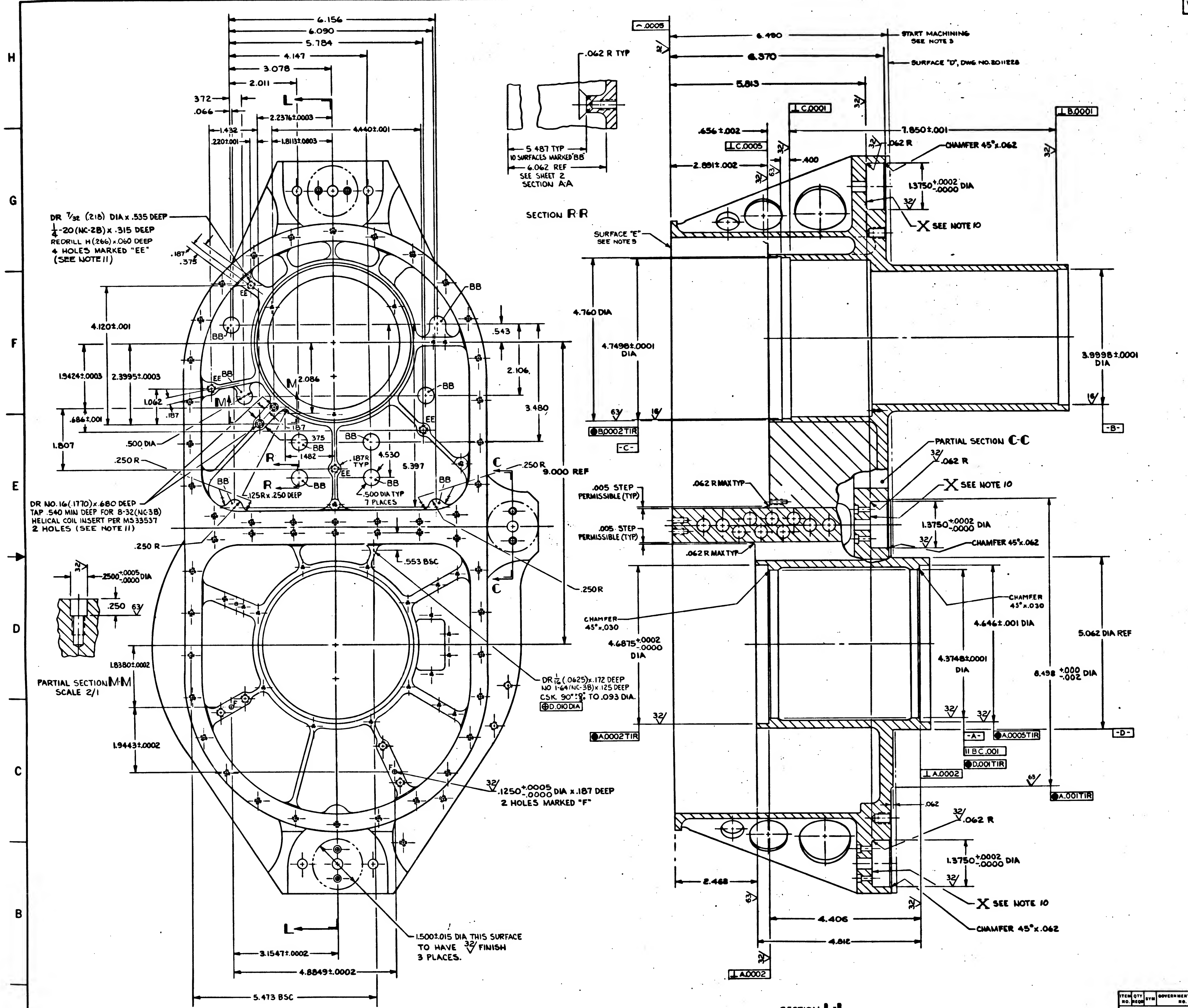
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 4

2012662 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25125	1/18/66	WK

REVISIONS 21860

A 2012662



MASTER

2012663	2011000
NEXT ASSY	USED ON
APPLICATION	

LIST OF PARTS AND MATERIALS

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V. AMATO DATE 8-10-65
CHECKED
APPROVAL 8/16/65
APPROVAL 8/27/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 4

2012662

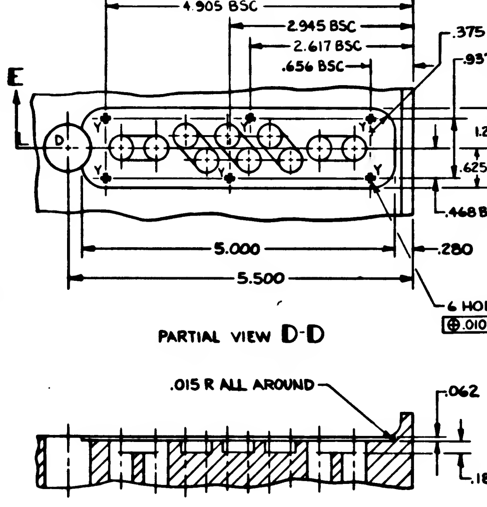
B	2012662

REVISIONS 21860				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25125	1/18/66	WK
B		REVISED PER TDRR 26269	2/23/66	WK

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. MACHINE SURFACE "E" ON SHEET 4 OF THIS DWG. BY PICKING UP ON SURFACE "D" OF DWG NO. 2011228.
4. UNLESS OTHERWISE SPECIFIED:
   a. 125√ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
   c. FILLETS TO BE .250 ± .015 R.
5. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
6. HEAT TREAT (STRESS RELIEVE & STABILIZE) PER ND1002114
7. PART TO BE PENETRANT INSPECTED PER MIL-I-6866 METHOD II.

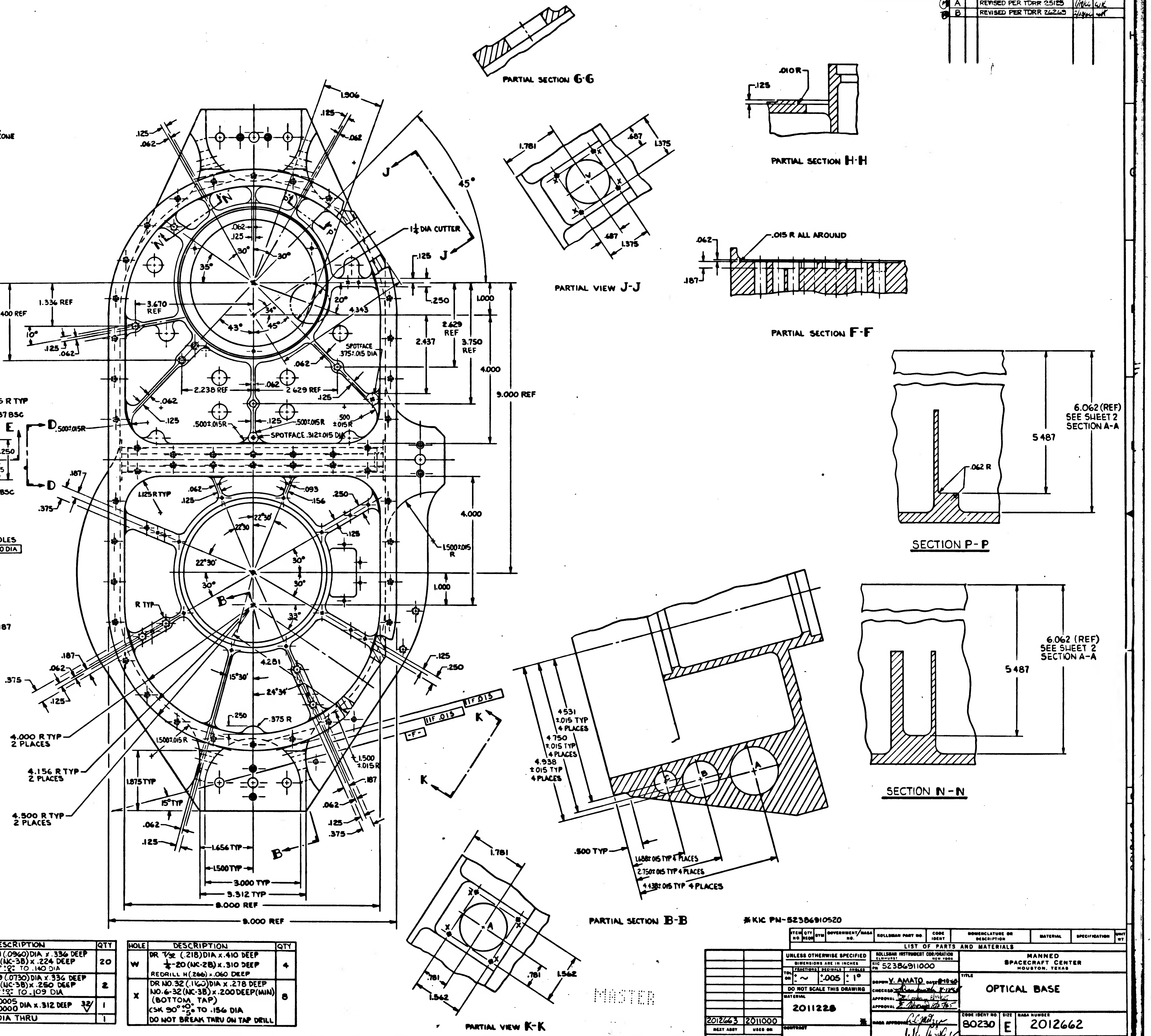
8. TRANSFER SERIAL NO. PER ND1002023.
9. USE BROACHING TOOL FOR HOLES "K" & "L" PER ND1002121.
10. 3 SURFACES MARKED "X" (SHEET 4) TO LIE IN A TOLERANCE ZONE OF .0004. THE TOLERANCE ZONE TO BE ⊥ TO THE AXIS DETERMINED BY [-A-].
11. HOLES TO BE TAPPED PRIOR TO MACHINING OF RIBS (SIX SPECIFIED HOLES, SHEET 4).
12. IDENTIFY USING NASA DWG NO., REV LETTER & MFR'S SYM PER ND1002019 (TAGGING)

HOLE	DESCRIPTION	QTY
Y	DR NO. 32 (.116) x .438 DEEP NO. 6-32 (NC-3B) x .250 DEEP CSK 90° $^{+0°}_{-5°}$ TO .156 DIA	11
Z	DR NO. 11 (.191) x .360 DEEP NO. 12-28 (UNF-2B) x .210 DEEP CSK 90° $^{+0°}_{-5°}$ TO .236 DIA	4
AA	DR NO. 41 (.0960) DIA THRU NO. 4-40 (NC-3B) THRU CSK 90° $^{+0°}_{-5°}$ TO .140 DIA	2
BB	DR 7/32 (.218) DIA THRU 1/4-20 (NC-2B) THRU REDRILL H (.266) x .060 DP.	2



PARTIAL VIEW D-D

PARTIAL SECTION E-E



PARTIAL SECTION G-G

PARTIAL SECTION H-H

PARTIAL VIEW J-J

PARTIAL SECTION F-F

SECTION P-P

SECTION N-N

PARTIAL SECTION B-B

PARTIAL VIEW K-K

HOLE	DESCRIPTION	QTY
A	1.500 DIA THRU	5
B	1.125 DIA THRU	4
C	.687 DIA THRU	4
D	.750 DIA x 8.000 DEEP	1
E	DR 3/8 (.375) DIA THRU	9
F	DR 3/8 (.375) DIA THRU 7/16-20 (NF-2B) x .281 DEEP	1
G	DR 5/16 (.312) DIA THRU	3
H	DR 9/32 (.281) DIA THRU CBORE .593 DIA x .625 DEEP	4
J	DR NO. 30 (.1285) DIA THRU CBORE .218 DIA x .125 DEEP OPPOSITE SIDE	6
K	DR I (.272) DIA x .437 DEEP 5/16-18 (NC-2B) x .380 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	9
L	DR I (.272) DIA x .734 DEEP 5/16-18 (NC-2B) x .468 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	15
M	DR NO. 19 (.1660) DIA THRU NO. 10-32 (NF-2B) THRU CSK 90° $^{+0°}_{-5°}$ TO .218 DIA	26
N	DR NO. 19 (.1660) DIA x .375 DEEP NO. 10-32 (NF-2B) x .254 DEEP CSK 90° $^{+0°}_{-5°}$ TO .218 DIA	22
P	DR NO. 27 (.1440) DIA x .500 DEEP NO. 8-32 (NC-3B) x .328 DEEP CSK 90° $^{+0°}_{-5°}$ TO .187 DIA	1
R	DR NO. 32 (.1160) DIA x .513 DEEP NO. 6-32 (NC-3B) x .375 DEEP CSK 90° $^{+0°}_{-5°}$ TO .156 DIA	2

HOLE	DESCRIPTION	QTY
S	DR NO. 41 (.0960) DIA x .336 DEEP NO. 4-40 (NC-3B) x .224 DEEP CSK 90° $^{+0°}_{-5°}$ TO .140 DIA	20
T	DR NO. 49 (.0730) DIA x .336 DEEP NO. 2-56 (NC-3B) x .250 DEEP CSK 90° $^{+0°}_{-5°}$ TO .109 DIA	2
U	.1240 $^{+.0005}_{-.0000}$ DIA x .312 DEEP 32√	1
V	1.375 DIA THRU	1

HOLE	DESCRIPTION	QTY
W	DR 7/32 (.218) DIA x .410 DEEP 1/4-20 (NC-2B) x .310 DEEP REDRILL H (.266) x .060 DEEP	4
X	DR NO. 32 (.1160) DIA x .278 DEEP NO. 6-32 (NC-3B) x .200 DEEP (MIN) (BOTTOM TAP) CSK 90° $^{+0°}_{-5°}$ TO .156 DIA DO NOT BREAK THRU ON TAP DRILL	8

MASTER

*KIC PN-52386910520

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL 2011228 *

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000

DRAWN V. AMATO DATE 8-10-65
CHECKED [illegible] 8-11-65
APPROVAL [illegible] 8/14/65
APPROVAL E. [illegible] 8-17-65
NASA APPROVAL C. C. Metzger
MIT APPROVAL [illegible]

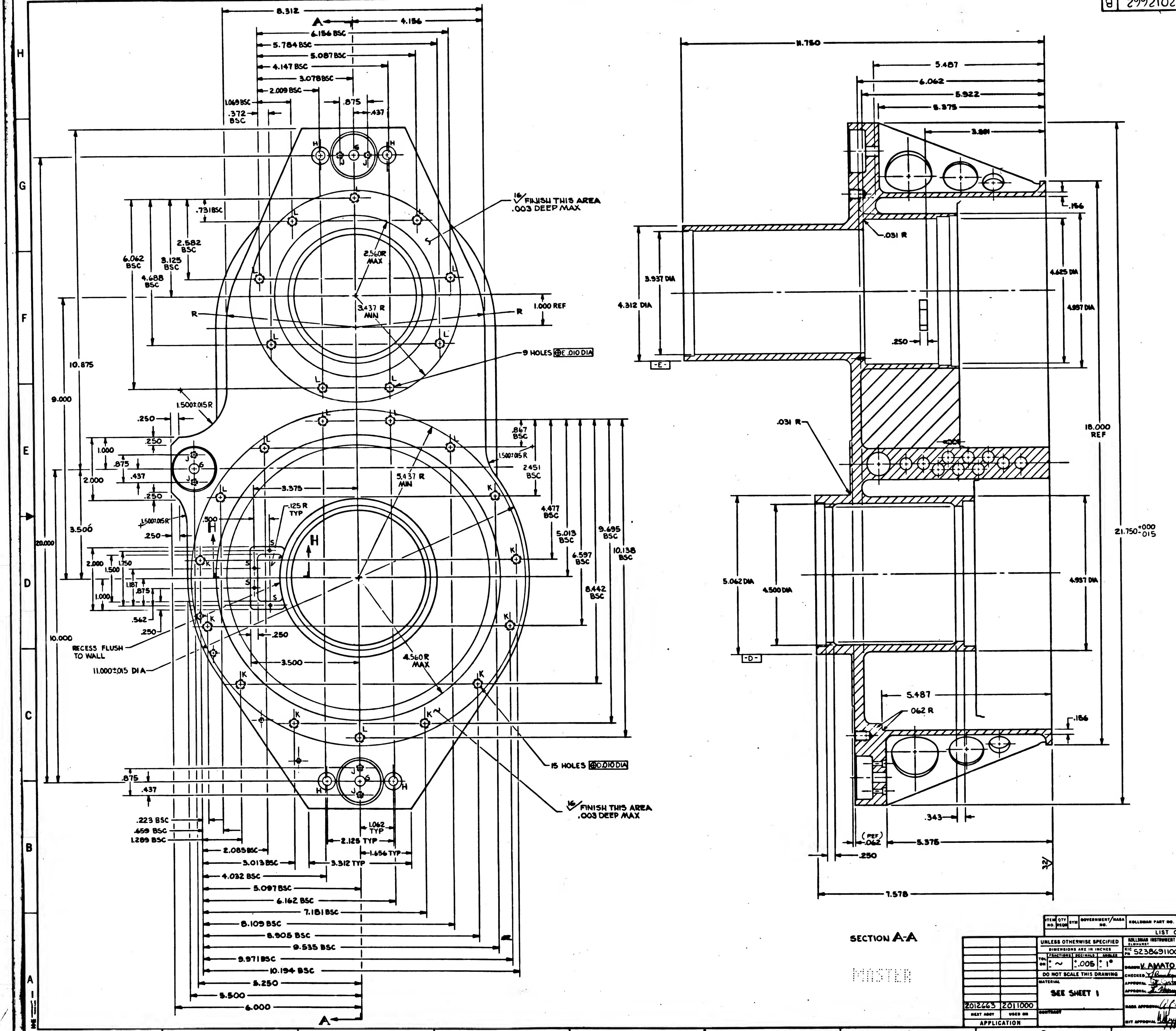
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET OF 4

2012662 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		REVISIONS 2/860		
A		REVISED PER TDRR 25125	1/18/66	WK
B		REVISED PER TDRR 26269	[illegible]	WK



SECTION A-A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000

DRAWN V. AMATO DATE 8-10-65
CHECKED [illegible] 8-1965
APPROVAL [illegible] 8/19/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012662

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 2 OF 4

B 2012662

REVISIONS 21860				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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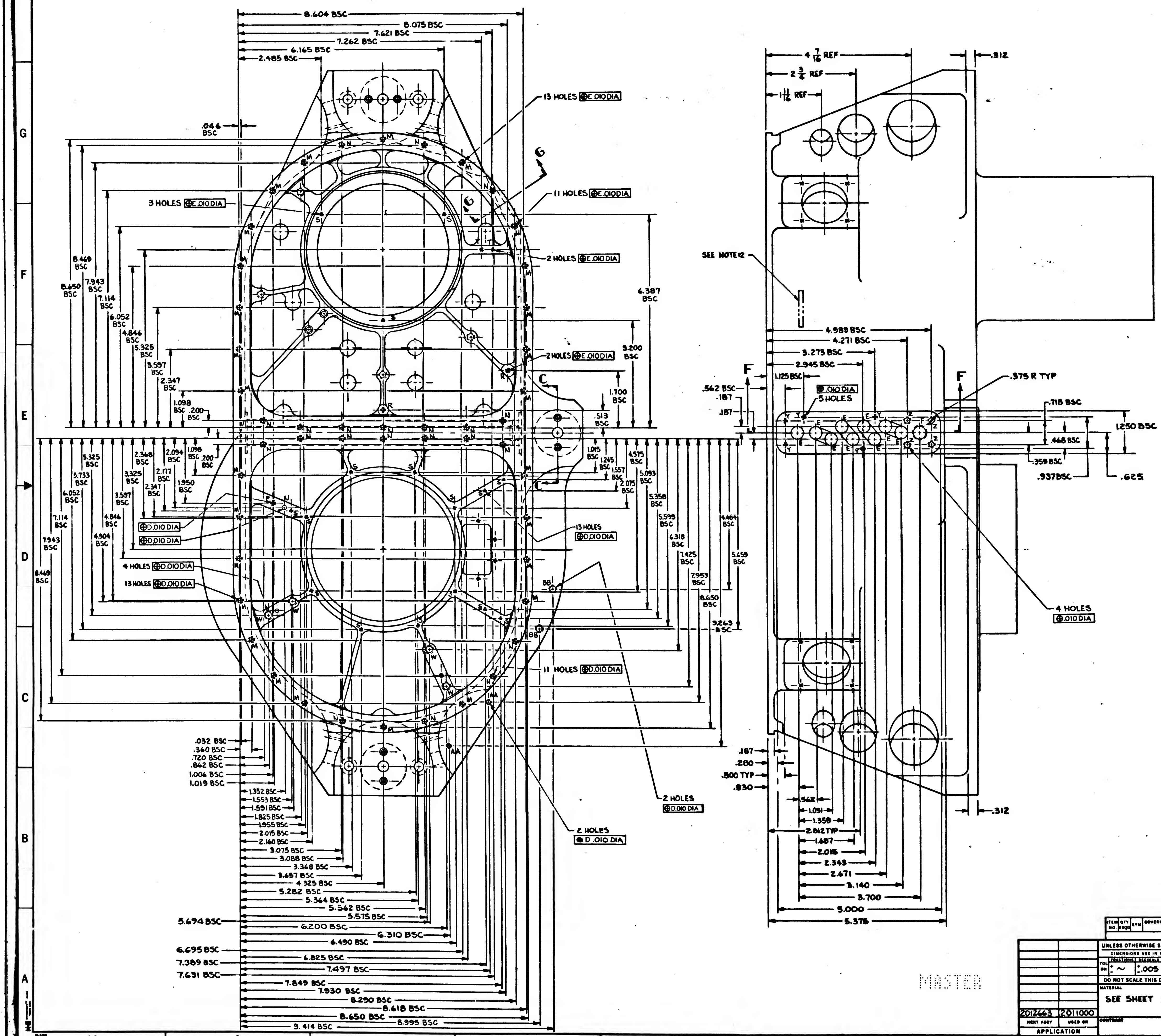
Ⓜ B		REVISED PER TDRR 26269	2/23/66	WK



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000

DRAWN V. AMATO DATE 8-10-65
CHECKED 8-11-65
APPROVAL E. Costa 8/19/65
APPROVAL 8/21/65
NASA APPROVAL C. C. Kirby
ENT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012662

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 3 OF 4

MASTER

B 2012662

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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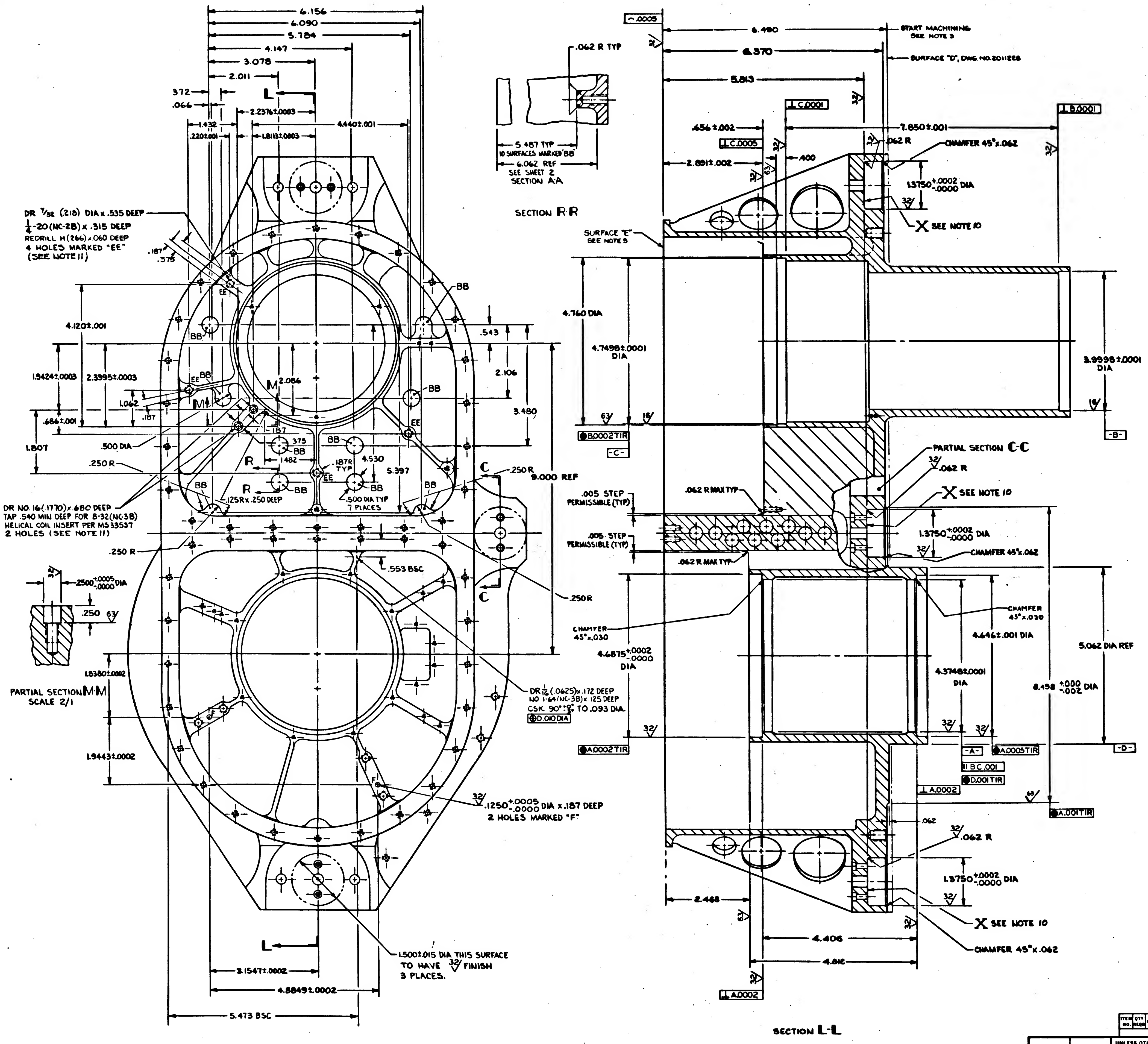
B		REVISED PER TDRR 26269	4/24/66	wk

REVISIONS 21860



MASTER

LIST OF PARTS AND MATERIALS

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V. AMATO DATE 8-10-65
CHECKED 8-11-65
APPROVAL 8/11/65
APPROVAL 8/13/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 4

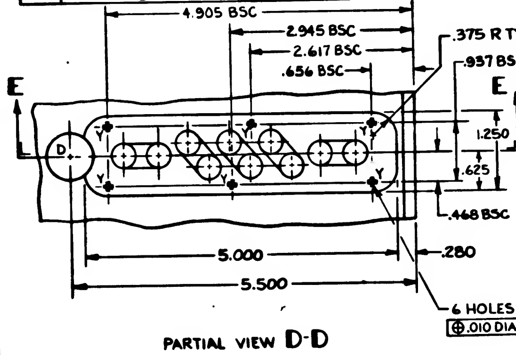
2012662

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

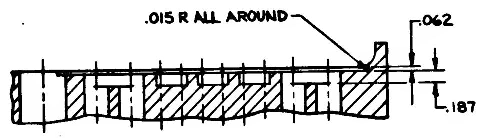
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. MACHINE SURFACE "E" ON SHEET 4 OF THIS DWG. BY PICKING UP ON SURFACE "D" OF DWG. NO. 2011228.
4. UNLESS OTHERWISE SPECIFIED:
   a. 125✓ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078
   c. FILLETS TO BE .250 ± .015 R.
5. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
6. HEAT TREAT (STRESS RELIEVE & STABILIZE) PER ND1002114
7. PART TO BE PENETRANT INSPECTED PER MIL-I-6866 METHOD II.

8. TRANSFER SERIAL NO. PER ND1002023.
9. USE BROACHING TOOL FOR HOLES "K" & "L" PER ND1002121.
10. 3 SURFACES MARKED "X" (SHEET 4) TO LIE IN A TOLERANCE ZONE OF .0004. THE TOLERANCE ZONE TO BE ⊥ TO THE AXIS DETERMINED BY -A-.
11. HOLES TO BE TAPPED PRIOR TO MACHINING OF RIBS (SIX SPECIFIED HOLES, SHEET 4).
12. IDENTIFY USING NASA DWG NO., REV LETTER & MFR'S SYM PER ND1002019 (TAGGING)

HOLE	DESCRIPTION	QTY
Y	DR NO. 32 (.116) x .438 DEEP NO. 6-32 (NC-3B) x .250 DEEP CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .156 DIA	11
Z	DR NO. 11 (.191) x .360 DEEP NO. 12-28 (UNF-2B) x .210 DEEP CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .236 DIA	4
AA	DR NO. 41 (.0960) DIA THRU NO. 4-40 (NC-3B) THRU CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .140 DIA	2
BB	DR NO. 3 (.213) DIA THRU 1/4-20 (NC-2B) THRU CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .281 DIA	2

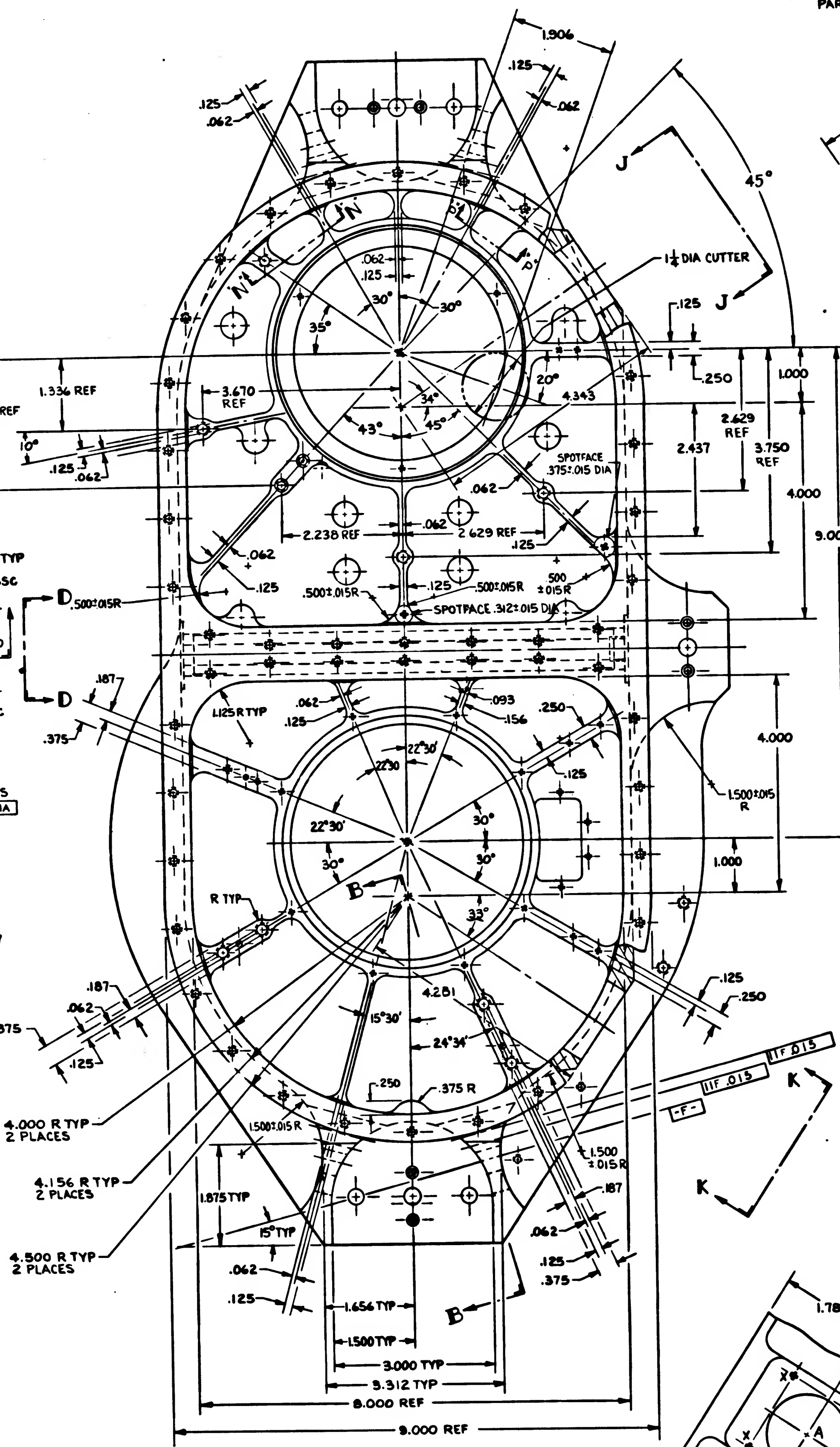


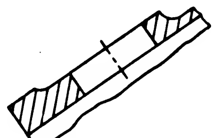
PARTIAL VIEW D-D



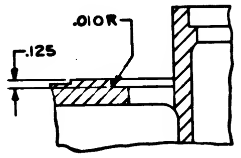
PARTIAL SECTION E-E

HOLE	DESCRIPTION	QTY
A	1.500 DIA THRU	5
B	1.125 DIA THRU	4
C	.687 DIA THRU	4
D	.750 DIA x 8.000 DEEP	1
E	DR 3/8 (.375) DIA THRU	9
F	DR 3/8 (.375) DIA THRU 7/16-20 (NF-2B) x .281 DEEP	1
G	DR 5/16 (.312) DIA THRU	3
H	DR 9/32 (.281) DIA THRU CBORE .593 DIA x .625 DEEP	4
J	DR NO. 30 (.1285) DIA THRU CBORE .218 DIA x .125 DEEP OPPOSITE SIDE	6
K	DR I (.272) DIA x .437 DEEP 5/16-18 (NC-2B) x .437 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	9
L	DR I (.272) DIA x .734 DEEP 5/16-18 (NC-2B) x .468 DEEP REDRILL "Q" (.332) DIA x .056 DEEP	15
M	DR NO. 19 (.1660) DIA THRU NO. 10-32 (NF-2B) THRU CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .218 DIA	26
N	DR NO. 19 (.1660) DIA x .375 DEEP NO. 10-32 (NF-2B) x .254 DEEP CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .218 DIA	22
P	DR NO. 27 (.1440) DIA x .500 DEEP NO. 8-32 (NC-3B) x .328 DEEP CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .187 DIA	1
R	DR NO. 32 (.1160) DIA x .513 DEEP NO. 6-32 (NC-3B) x .375 DEEP CSK 90° $^{+0^\circ}_{-5^\circ}$ TO .156 DIA	2

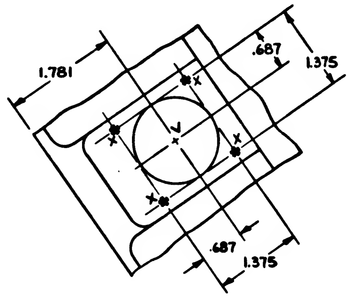




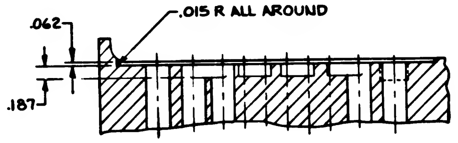
PARTIAL SECTION G-G



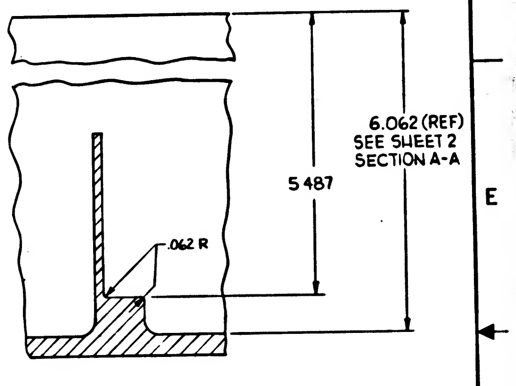
PARTIAL SECTION H-H



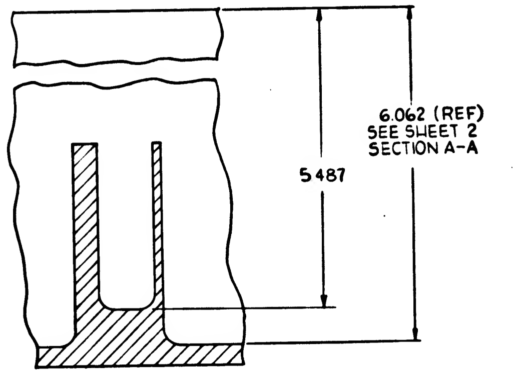
PARTIAL VIEW J-J



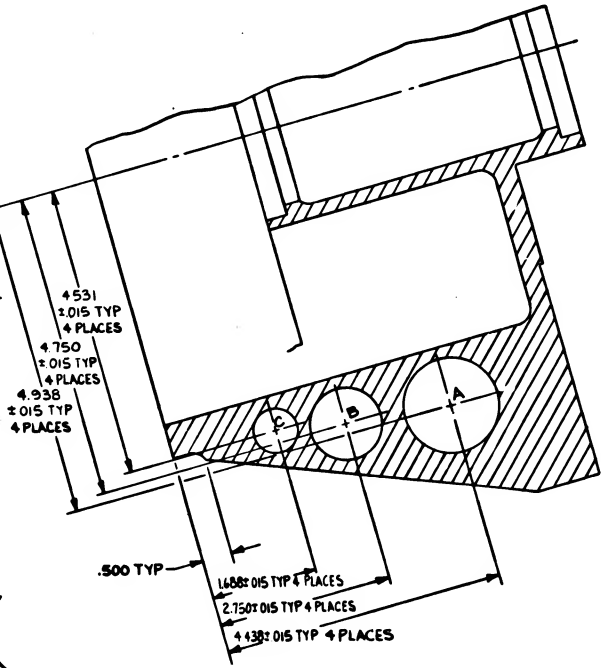
PARTIAL SECTION F-F



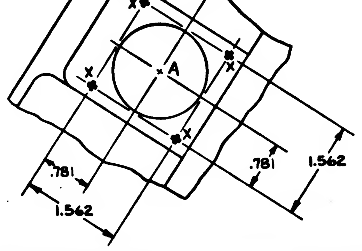
SECTION P-P



SECTION N-N


4.531 ± .015 TYP 4 PLACES
4.750 ± .015 TYP 4 PLACES
4.938 ± .015 TYP 4 PLACES
K
K
C
B
A
.500 TYP
1.688 ± .015 TYP 4 PLACES
2.750 ± .015 TYP 4 PLACES
4.438 ± .015 TYP 4 PLACES

PARTIAL SECTION B-B



PARTIAL VIEW K-K

*KIC PN-52386910520

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012663	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

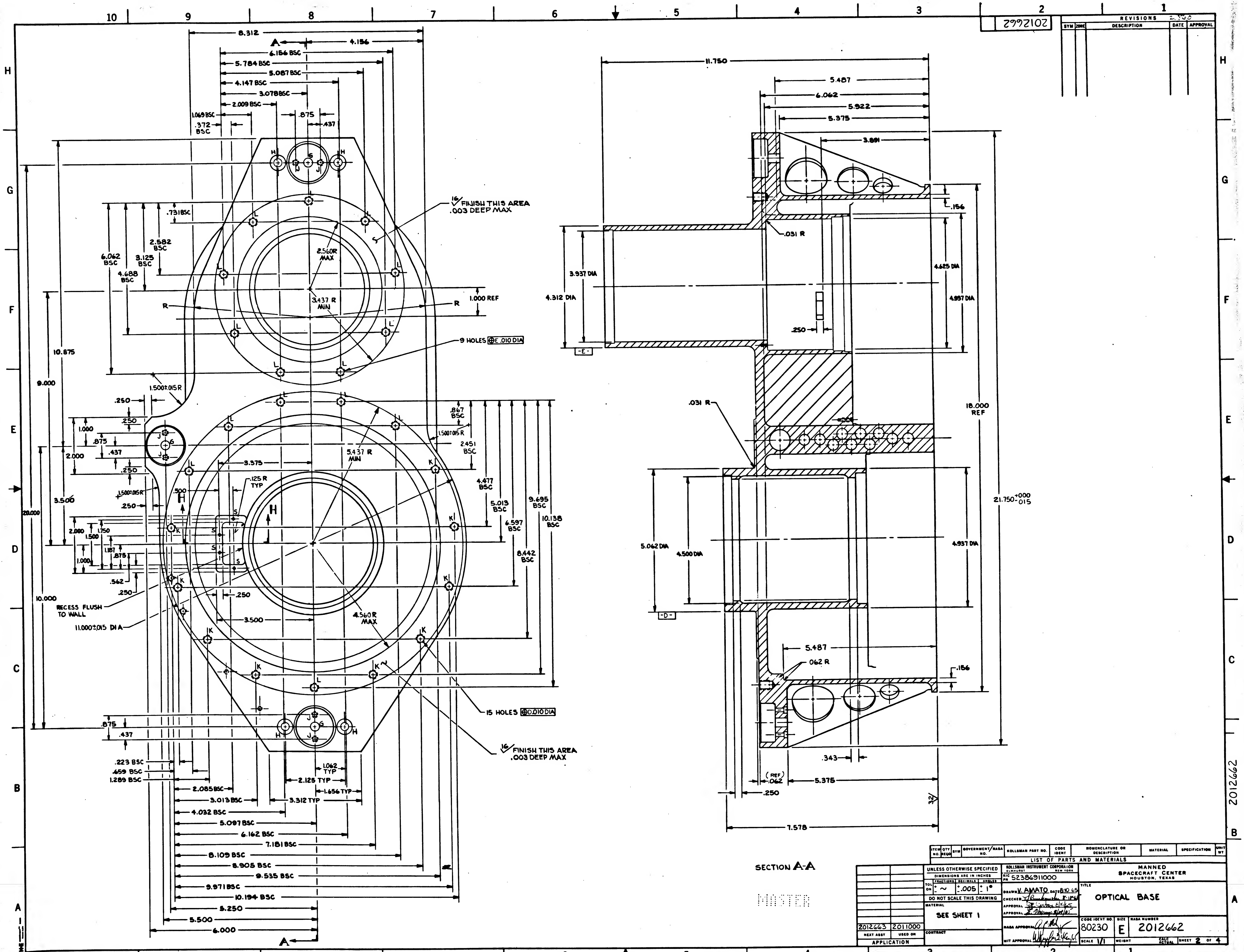
DO NOT SCALE THIS DRAWING
MATERIAL 2011228 *
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V. AMATO DATE 8-10-65
CHECKED 8-11-65
APPROVAL 8/14/65
APPROVAL E. Thomas 8/25/65
NASA APPROVAL C.C. Metzger
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET OF 4



REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ ; DECIMALS ± .005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V. AMATO DATE 8-10-65
CHECKED 8-1965
APPROVAL 8/19/65
APPROVAL
NASA APPROVAL
MIT APPROVAL

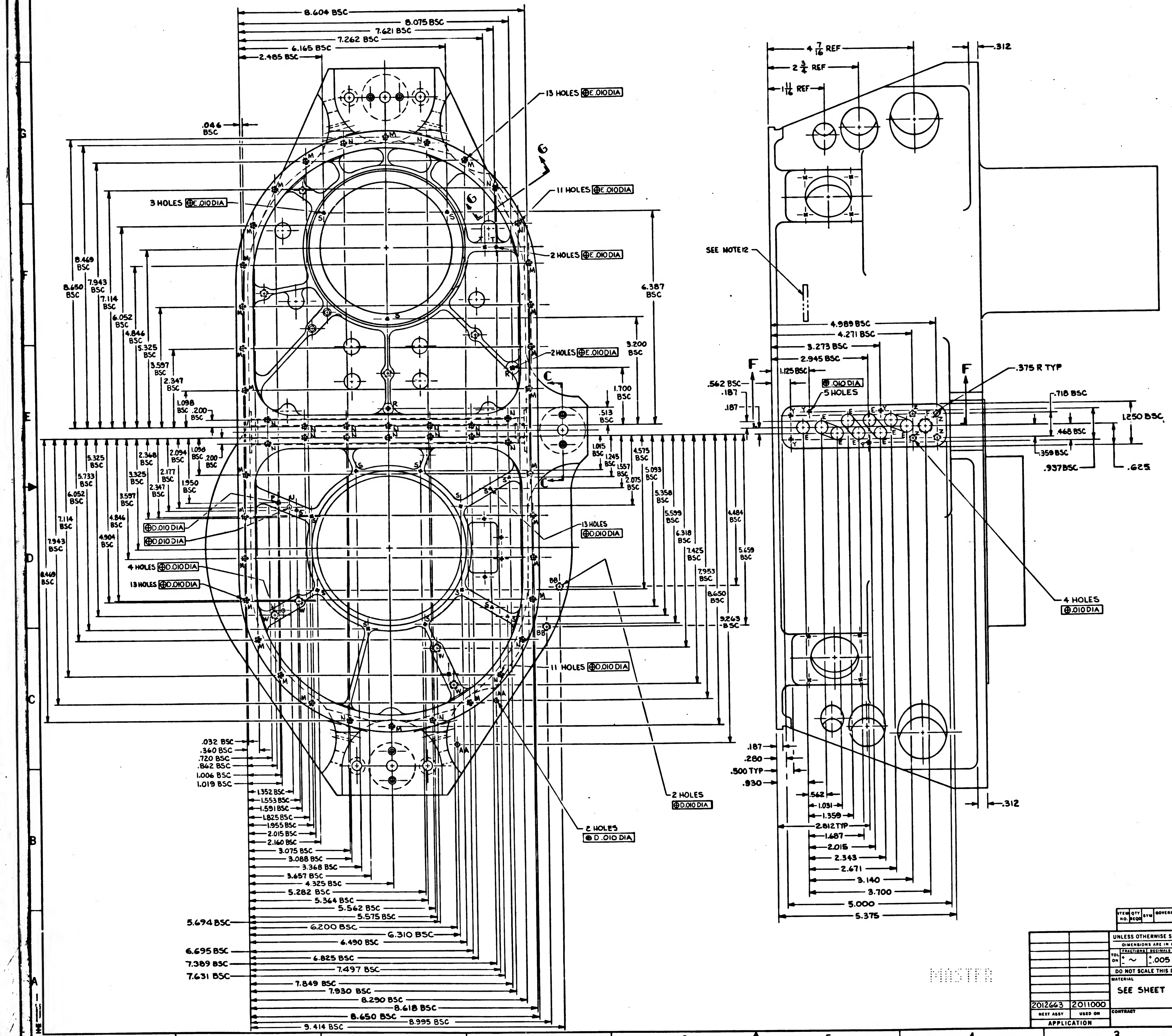
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 4

2012662

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V AMATO DATE 8-10-65
CHECKED 8-18-65
APPROVAL E Costa 8/19/65
APPROVAL E. Thering 8/20/65
NASA APPROVAL G. C. Wit
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

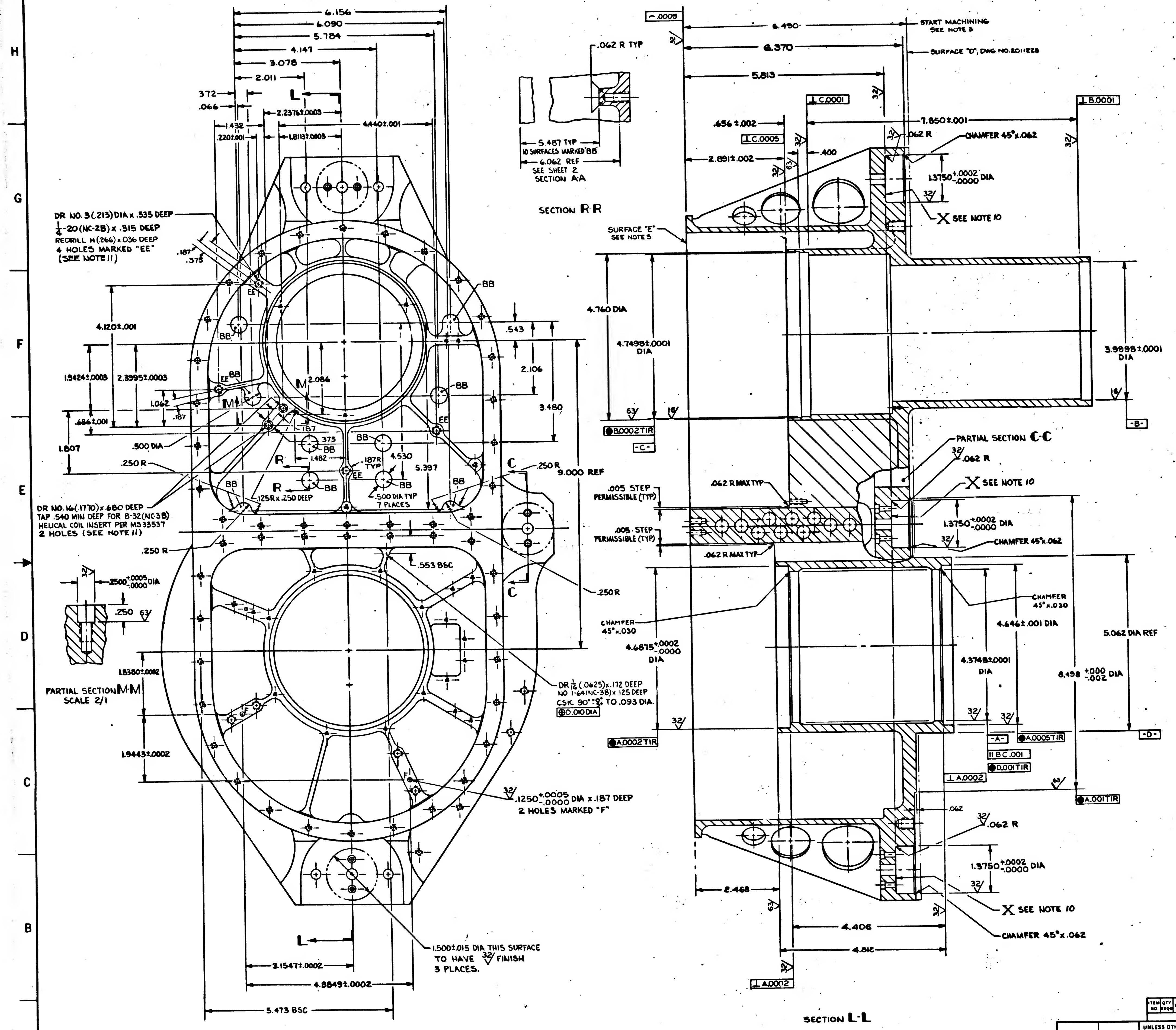
TITLE
OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 4

2012662

2012662

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL



SECTION L-L

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012663	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ ; DECIMALS ± .005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911000
DRAWN V. AMATO DATE 8-10-65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE OPTICAL BASE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012662
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 4

MASTER

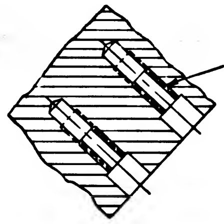
2012662

2012663 A

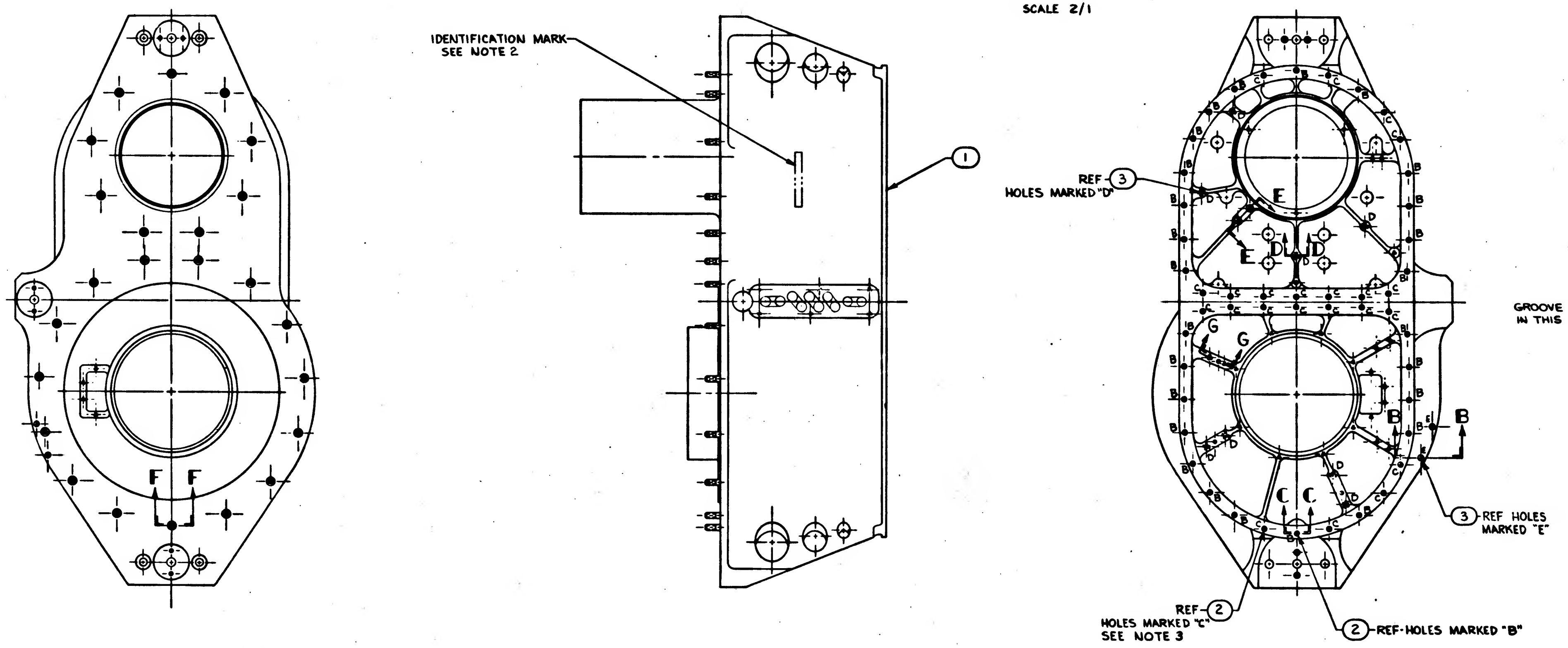
SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27676		

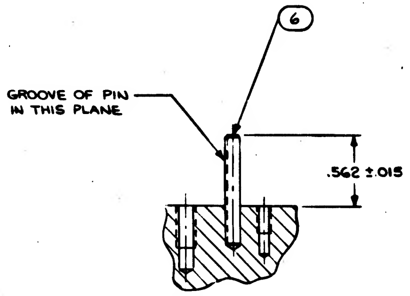
21860

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019
3. INSTALL FROM .010 TO .030 BELOW SURFACE
4. INSTALL FROM .010 TO .030 BELOW SURFACE AND WITH LOOP TOWARDS WALL.
5. INSTALL FROM .010 TO .030 BELOW SURFACE WITH KEYS APPROXIMATELY IN LINE AS SHOWN.

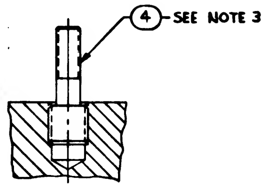


PARTIAL SECTION E-E
SCALE 2/1

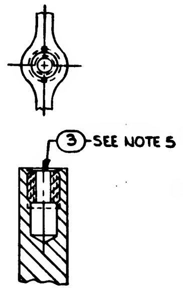




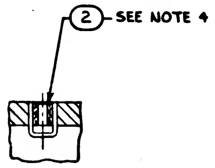
PARTIAL SECTION G-G
SCALE 2/1



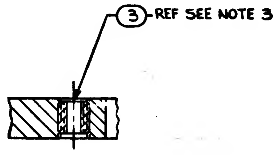
PARTIAL SECTION F-F
SCALE 2/1



PARTIAL SECTION D-D
SCALE 2/1



PARTIAL SECTION C-C
SCALE 2/1



PARTIAL SECTION B-B
SCALE 2/1

NOTE: THE ORIGINAL CONFIGURATION IS IDENTIFIED BY THE DRAWING NUMBER AND A -000 SUFFIX.

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DRAWING BEFORE ORDERING

	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	1	6			2011958	39386910010		PIN, STRAIGHT, HEADLESS			
	2	5			MS122159			INSERT-CRES HELICAL COIL			
	24	4		*	1011765	74464020001		STUD, LOCKED IN			
	10	3			NAS1394C-08			INSERT, THREADED METAL			
	48	2		*	1006702-7			INSERT, THREADED SELF LOCKING			
	1	1			2012662	52386911000		OPTICAL BASE			
QTY REQD											

LIST OF PARTS AND MATERIALS

2011889	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911640
DRAWN V. AMATO DATE 8-12-65
CHECKED 8-18-65
APPROVAL 8/19/65
APPROVAL 8/19/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL BASE
ASSEMBLY OF

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012663
SCALE 1/2
WEIGHT CALC ACTUAL
SHEET 1 OF 1

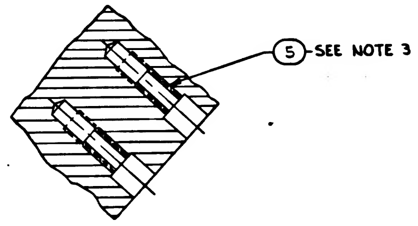
2012663 A

MASTER

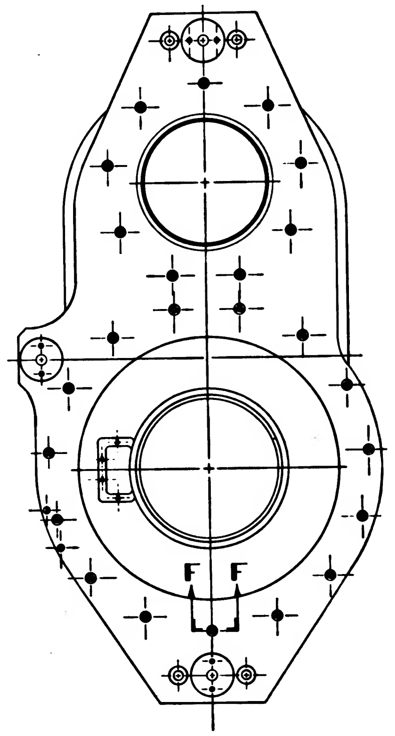
2012663

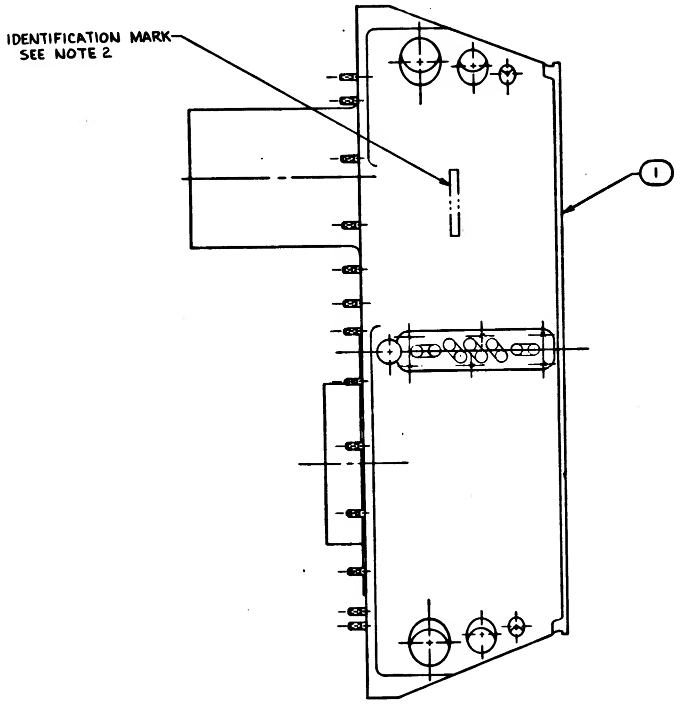
REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

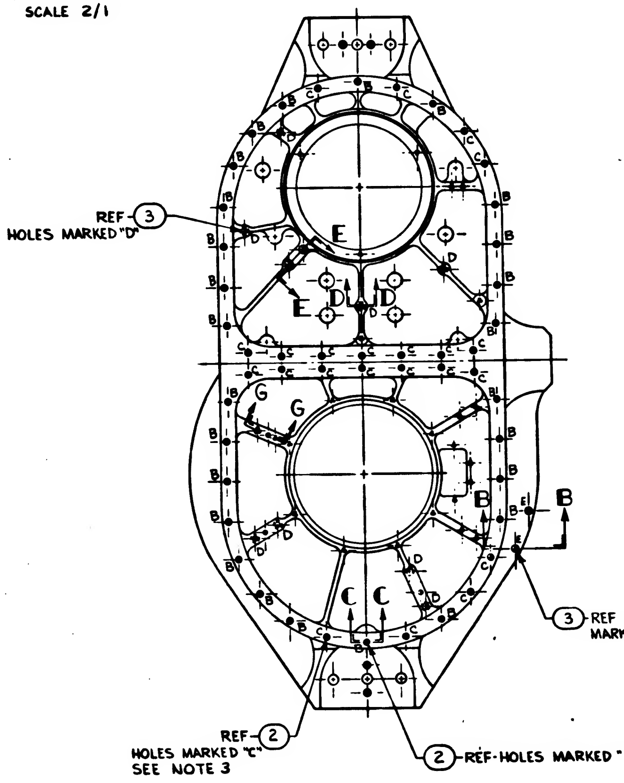
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019
3. INSTALL FROM .010 TO.030 BELOW SURFACE
4. INSTALL FROM .010 TO .030 BELOW SURFACE AND WITH LOOP TOWARDS WALL.
5. INSTALL FROM .010 TO .030 BELOW SURFACE WITH KEYS APPROXIMATELY IN LINE AS SHOWN.

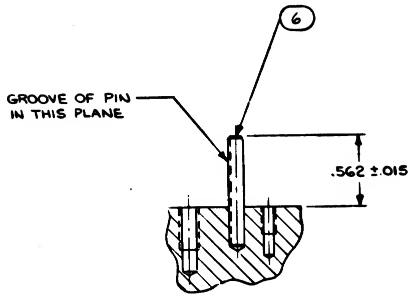


PARTIAL SECTION E-E
SCALE 2/1

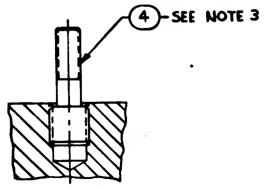




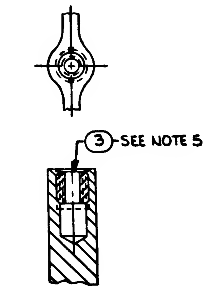




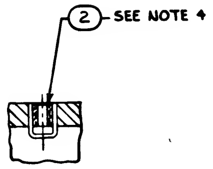
PARTIAL SECTION G-G
SCALE 2/1



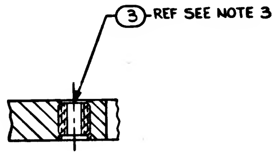
PARTIAL SECTION F-F
SCALE 2/1



PARTIAL SECTION D-D
SCALE 2/1



PARTIAL SECTION C-C
SCALE 2/1



PARTIAL SECTION B-B
SCALE 2/1

NOTE: THE ORIGINAL CONFIGURATION IS IDENTIFIED BY THE DRAWING NUMBER AND A -000 SUFFIX.

✱ PURCHASE ITEM - SEE SPECIFICATION CONTROL DRAWING BEFORE ORDERING

2012663

	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	1	6			2011958	39386910010		PIN, STRAIGHT, HEADLESS			
	2	5			MS122159			INSERT-CRES HELICAL COIL			
	24	4		✱	1011765	74464020001		STUD, LOCKED IN			
	10	3			NAS1394C-08			INSERT, THREADED METAL			
	48	2		✱	1000115-2			INSERT, THREADED SELF LOCKING			
	1	1			2012662	52386911000		OPTICAL BASE			
QTY REQD					LIST OF PARTS AND MATERIALS						

NEXT ASSY: 2011889	USED ON: 2011000	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN 85386911640	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		MATERIAL	DRAWN V. AMATO DATE 8-12-65 CHECKED 8-14-65 APPROVAL E. Costa 8/19/65 APPROVAL 8/19/65	TITLE OPTICAL BASE ASSEMBLY OF
		CONTRACT	NASA APPROVAL MIT APPROVAL	CODE IDENT NO. 80230 SIZE E NASA NUMBER 2012663 SCALE 1/2 WEIGHT CALC ACTUAL SHEET 1 OF 1

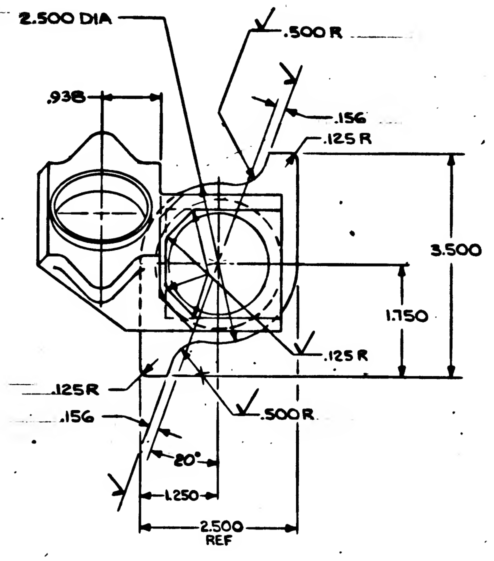
MASTER

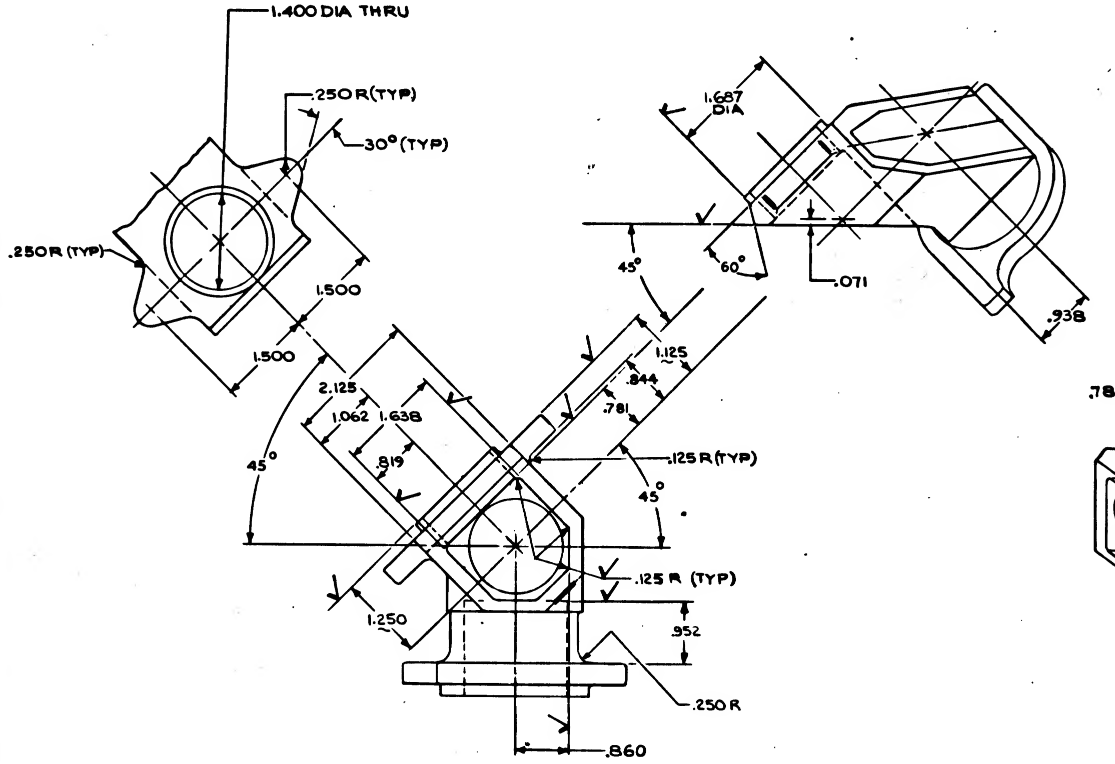
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: INVESTMENT CASTING ALUMINUM ALLOY 356T6.
FED. SPEC MIL-C-11866 (Ord) ALLOY NO.356, COND T6.

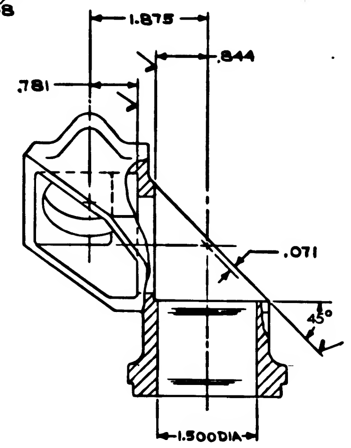
3. CORNER RADII AND FILLETS .031R UNLESS OTHERWISE SPECIFIED:
4. SURFACES MARKED ✓ WILL BE MACHINED.
DIMENSIONS INCLUDE ALLOWANCE FOR MACHINING.
5. CASTING TOLERANCE ±.005 INCH/INCH
6. DIA'S AND SURFACES SUBSEQUENTLY NOT MACHINED. TO HAVE A CAST FINISH OF 125 RMS (MAX)
7. IDENTIFY USING NASA DWG NO., REVISION LETTER, AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).

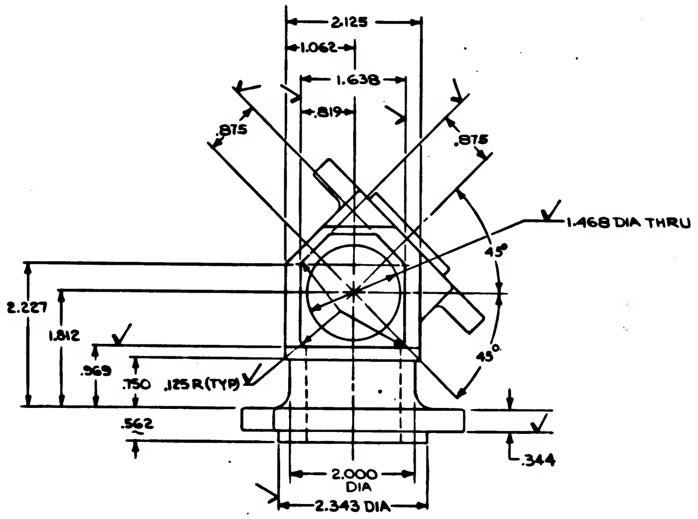
2012664

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL









ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012665	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ±0° 30'
DO NOT SCALE THIS DRAWING
MATERIAL: SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 21386910120
DRAWN DATE 8/18/65
CHECKED 9-21-65
APPROVAL
APPROVAL 10/8/65
A. G. [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING SCT PRISM
(CASTING)

CODE IDENT NO 80230 | SIZE E | NASA NUMBER 2012664
SCALE 1/1 | WEIGHT | CALC ACTUAL | SHEET 1 OF 1

MASTER

2012664

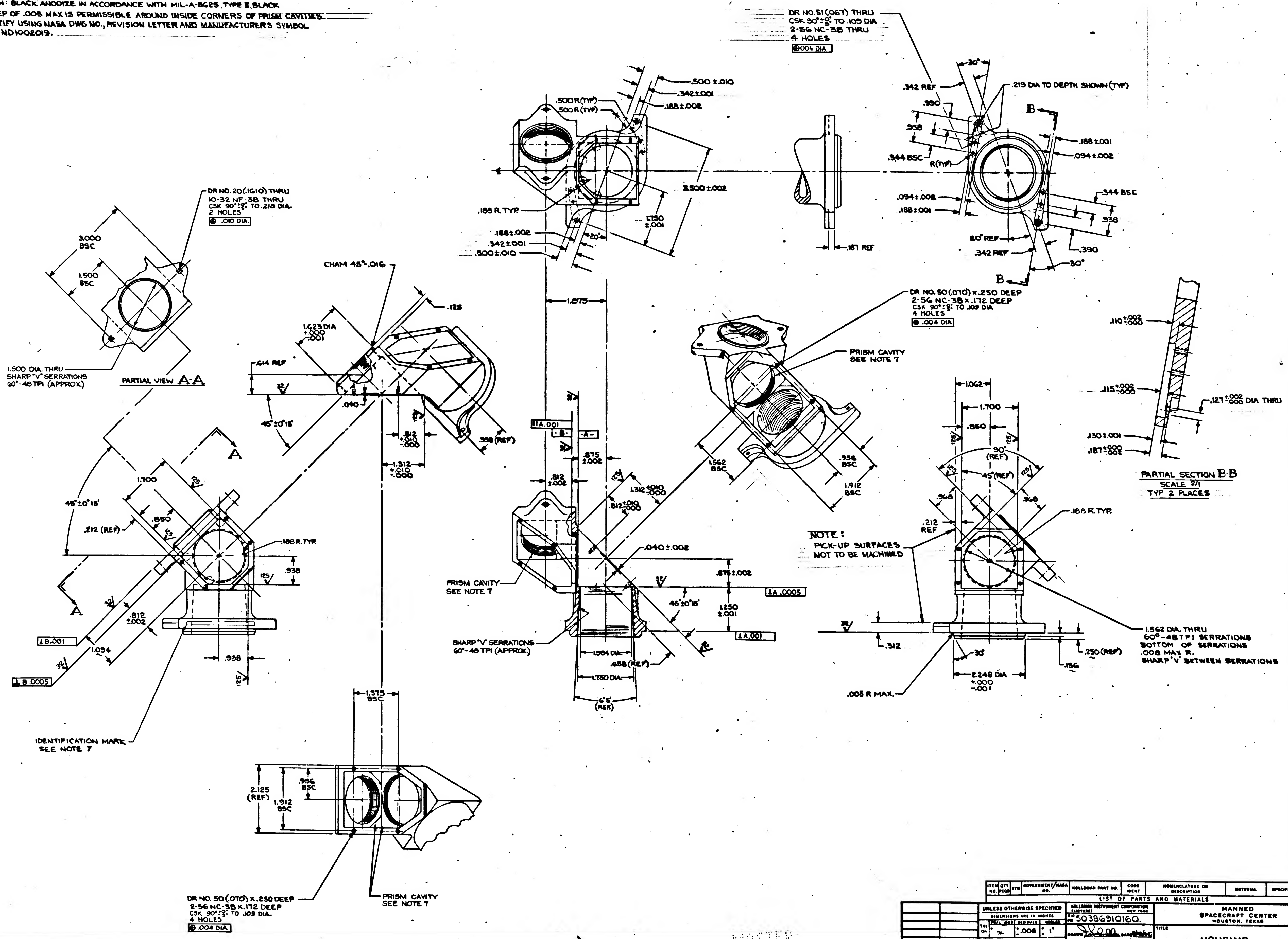
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED 63√ FINISH ON ALL MACHINED SURFACES.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, BLACK
6. A STEP OF .005 MAX IS PERMISSIBLE AROUND INSIDE CORNERS OF PRISM CAVITIES
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

A	2012665

REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26301	4/15/66	



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012664
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910160
DRAWN
CHECKED H C Curry 9-21-65
APPROVAL 4/4/67
APPROVAL 10/8/65
NASA APPROVAL A. L. METZGER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING,
SCT PRISM

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012665
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

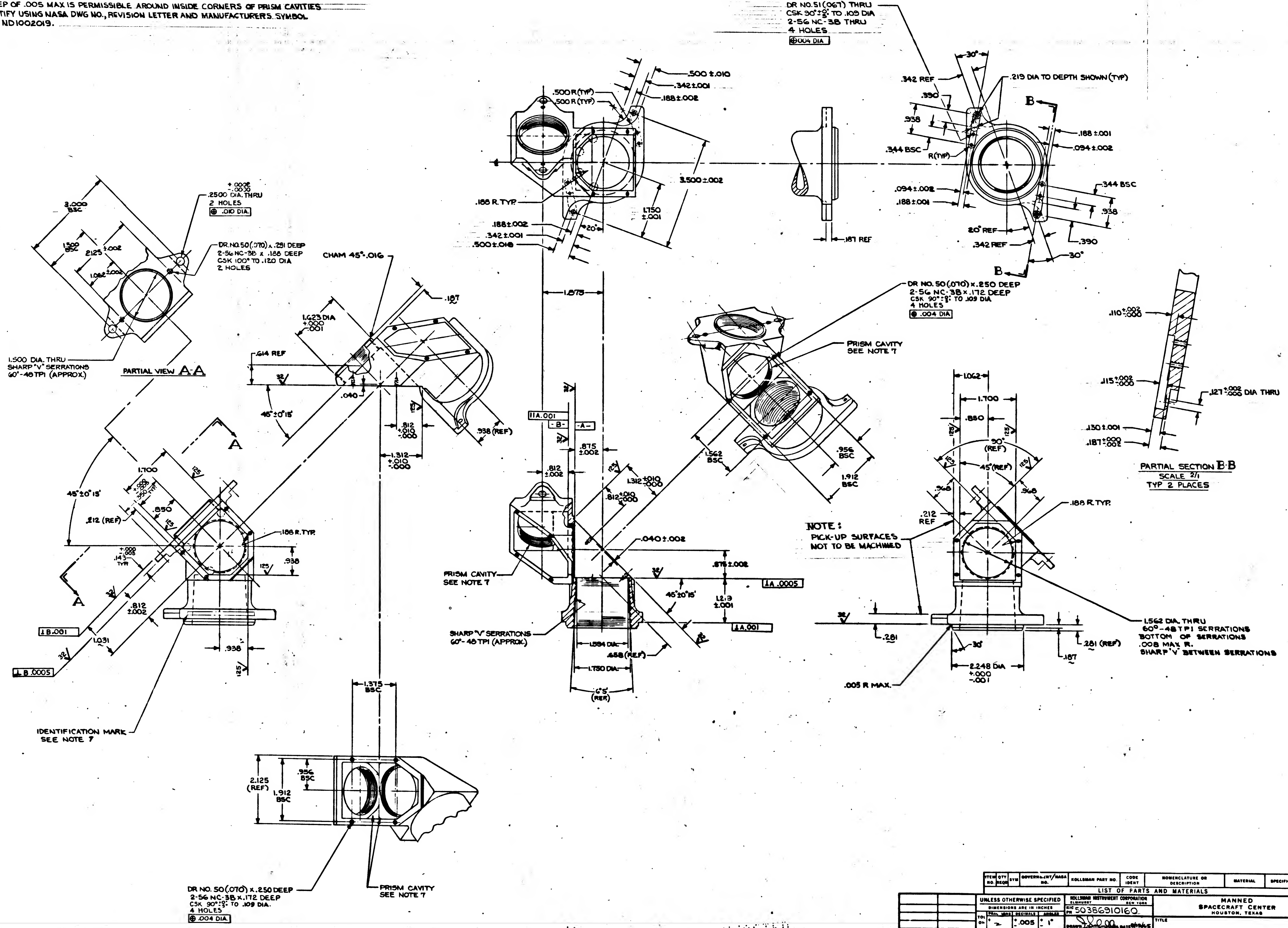
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED 63√ FINISH ON ALL MACHINED SURFACES.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, BLACK
6. A STEP OF .005 MAX IS PERMISSIBLE AROUND INSIDE CORNERS OF PRISM CAVITIES
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

2012665 B

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26301	3/23/66	
B		REVISED PER TDRR 28209	5/4/66	



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ; DECIMALS ±.005 ; ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012664
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910160
DRAWN DATE
CHECKED 9-21-65
APPROVAL
APPROVAL
NASA APPROVAL A. L. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING,
SCT PRISM

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012665
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012665 B

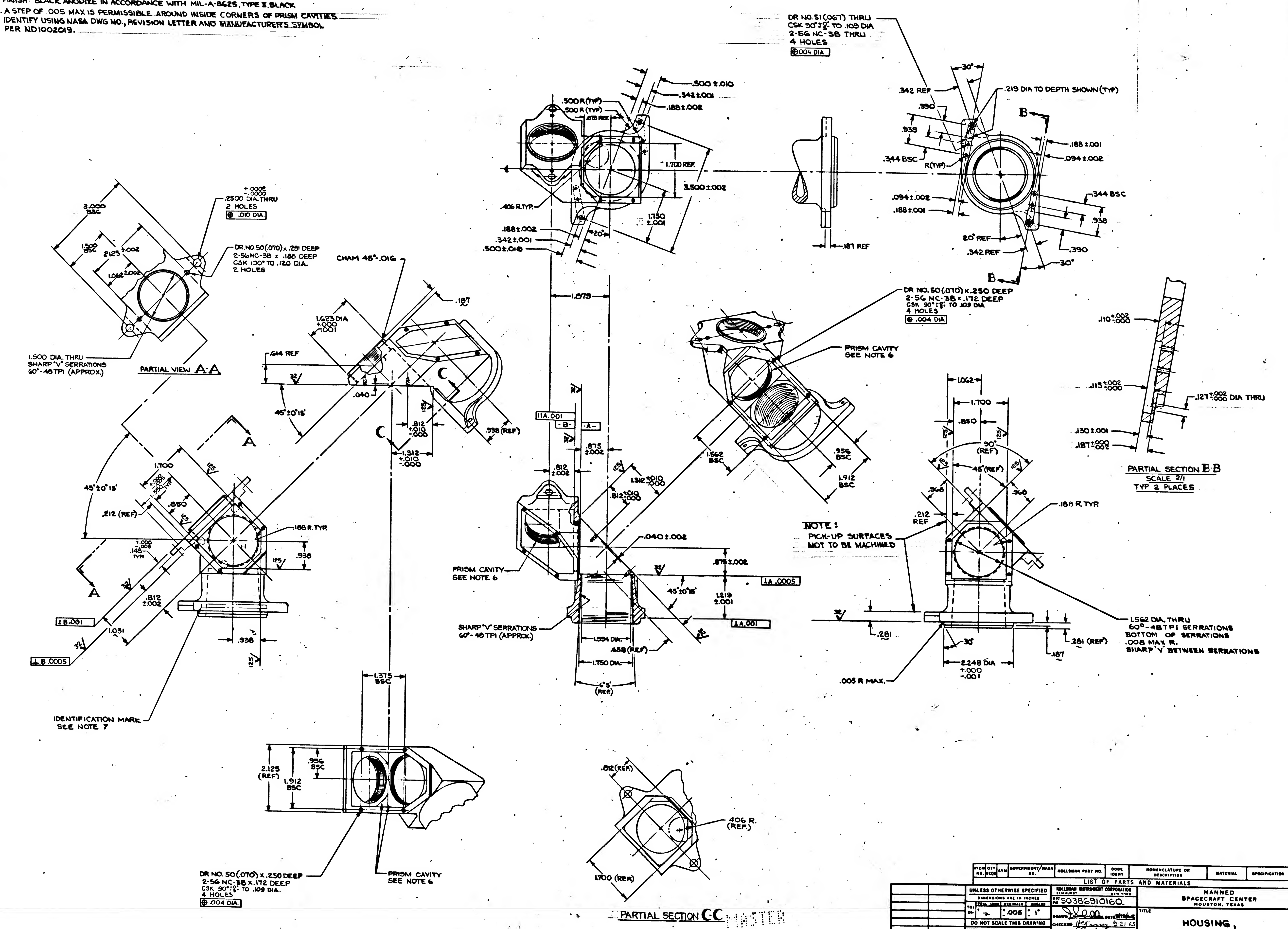
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED $\sqrt{63}$ FINISH ON ALL MACHINED SURFACES.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, BLACK.
6. A STEP OF .005 MAX IS PERMISSIBLE AROUND INSIDE CORNERS OF PRISM CAVITIES
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

2012665 C

REVISIONS TDRC 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26301	3/23/66	
B		REVISED PER TDRR 28209	5/4/66	
C		REVISED PER TDRR 28978		



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012664
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910160
DRAWN DATE
CHECKED H.C. 9 21 65
APPROVAL
APPROVAL 10/8/65
NASA APPROVAL A. C. METZGER
KIT APPROVAL

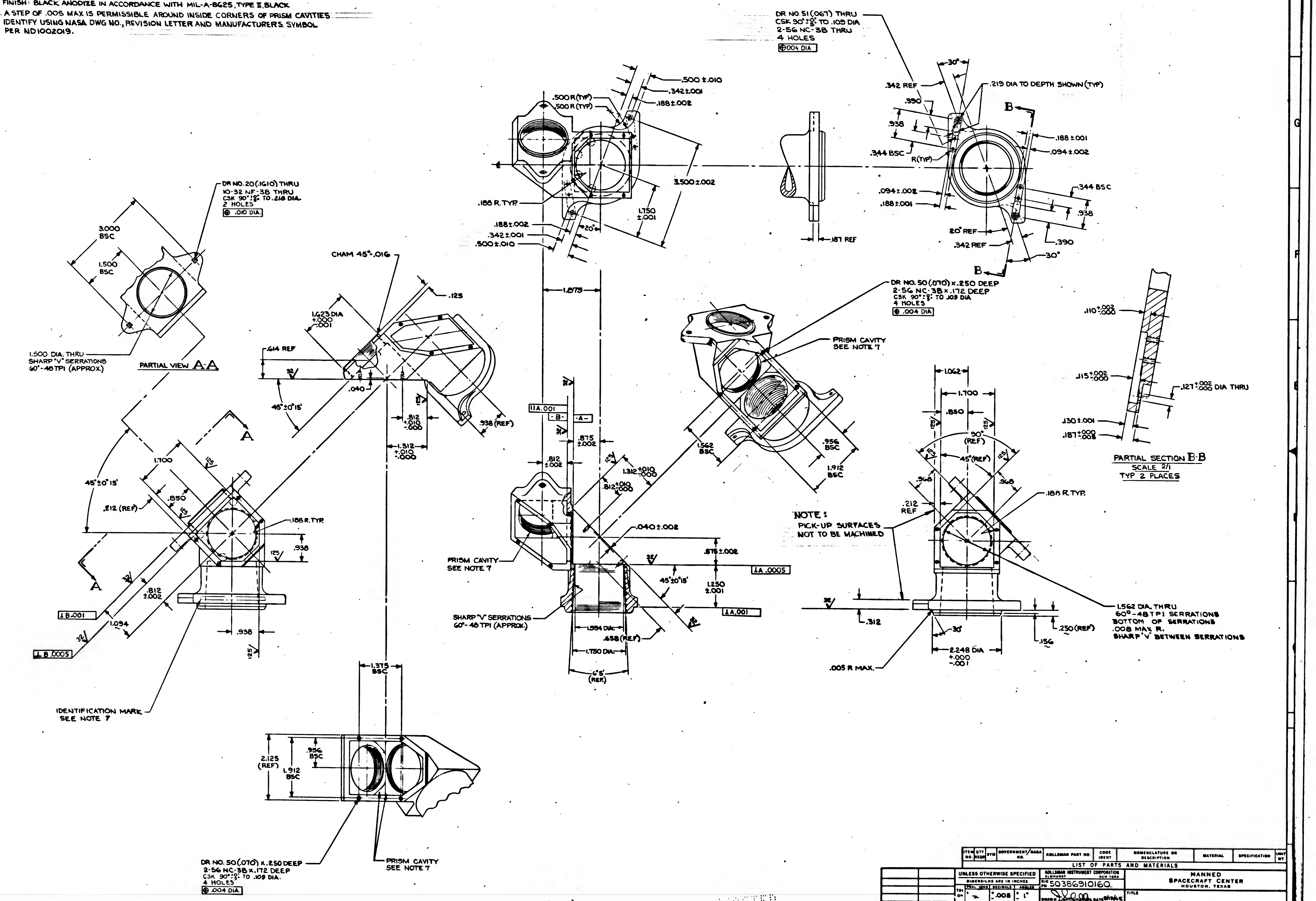
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING,
SCT PRISM

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012665
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED 63√ FINISH ON ALL MACHINED SURFACES.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, BLACK
6. A STEP OF .005 MAX IS PERMISSIBLE AROUND INSIDE CORNERS OF PRISM CAVITIES
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012666	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —; DECIMALS ± .005; ANGLES ± 1°
DO NOT SCALE THIS DRAW'NG
MATERIAL 2012664
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910160
DRAWN [illegible] DATE [illegible]
CHECKED H Crissey 9-21-65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

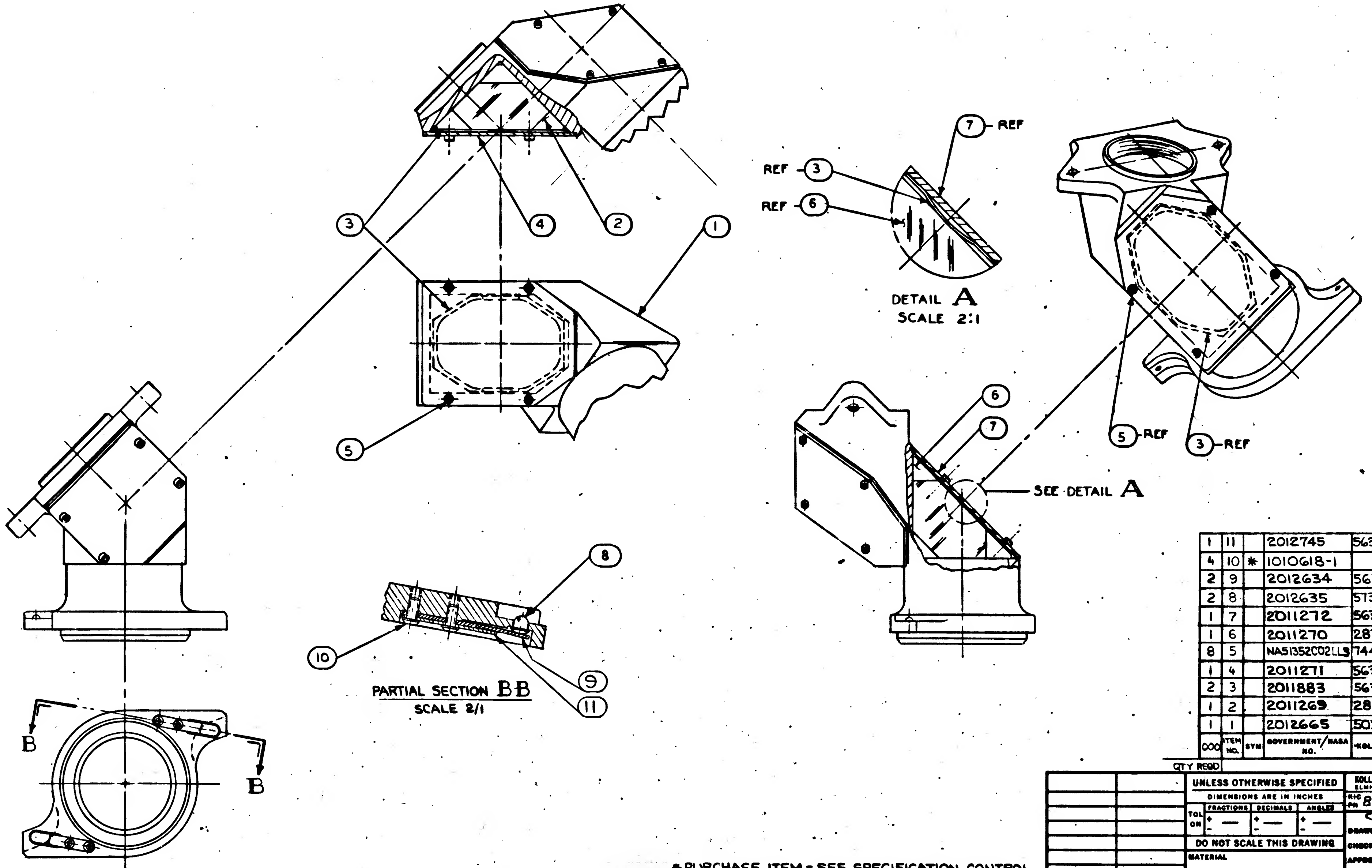
TITLE
HOUSING,
SCT PRISM

CODE IDENT NO. 80220
SIZE E
NASA NUMBER 2012665
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND 1002019. (BAGGING)

2012666	A

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26300		



QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	11		2012745	56386910680		SPRING, FLAT			
4	10	*	1010618-1	—		SCREW, BUTTON HD, SELF LOCKING, SOC HEX			
2	9		2012634	56386910610		SPRING, FLAT			
2	8		2012635	57386911660		PLUNGER			
1	7		2011272	56386910350		PLATE, COVER PRISM HOUSING			
1	6		2011270	28386910270		PRISM, LARGE SCT EYEPIECE			
8	5		NAS1352C02LL3	74455157006		SCREW, CAP, SOCKET HEAD SELF-LOCKING			
1	4		2011271	56386910340		PLATE, COVER PRISM HOUSING			
2	3		2011883	56386910360		SPRING, ELLIPTICAL SCT PRISM			
1	2		2011269	28386910260		PRISM, SMALL SCT EYEPIECE			
1	1		2012665	50386910160		HOUSING, SCT PRISM			
000									

LIST OF PARTS AND MATERIALS

MASTER

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

NEXT ASSY	USED ON
2012667	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911650
DRAWN 8/13/64
CHECKED H. Prussey 3-21-65
APPROVAL 10/12/65
APPROVAL E. Thorup 10/11/65
NASA APPROVAL A. C. Metcalf
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, SCT PRISM, ASSY OF

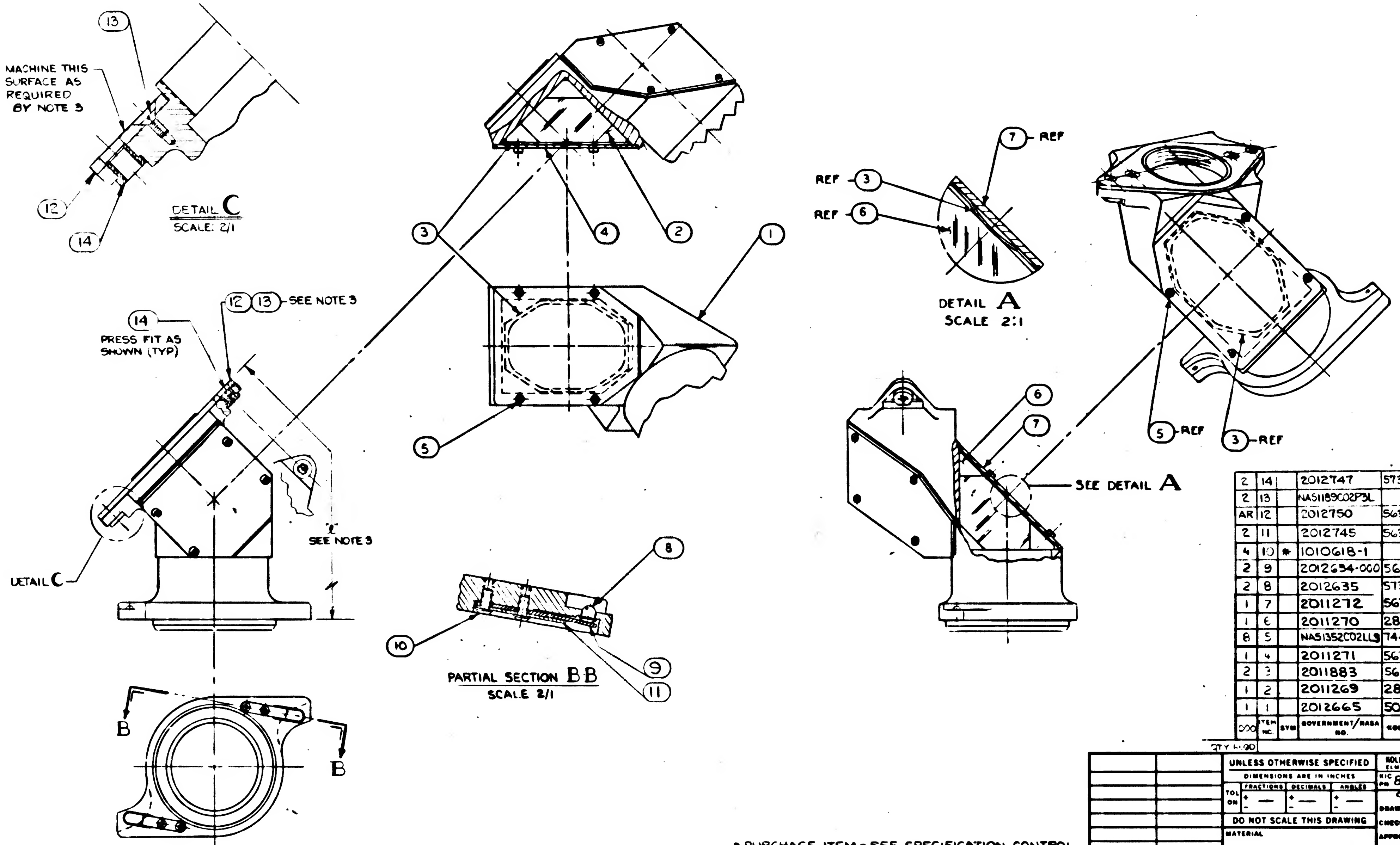
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012666
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012666 C

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26300	4/23/66	[illegible]
B		REVISED PER TDRR 28210	[illegible]	[illegible]
C		REVISED PER TDRR 36290	6/5/68	[illegible]

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND 1002019 (BAGGING)
3. a. MACHINE ITEM 12 AS REQ'D TO PROVIDE AN OPTICAL PATH "L" (AIR EQUIVALENT) OF 3.835 ± .003.
   b. AFTER COMPLYING WITH NOTE 3a, ANODIZE ITEM 12 PER MIL-A-8625, TYPE II, CLASS II (DYED BLACK).



* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	14		2012747	57386911760		INSERT, THREADED			
2	13		NAS1189C02P3L			SCREW 100° FLAT HD., SELF LOCKING			
AR	12		2012750	56386910690		SHIM, MACHINED, SCT			
2	11		2012745	56386910680		SPRING, FLAT			
4	10	*	1010618-1	—		SCREW, BUTTON HD, SELF LOCKING, SOC HEX			
2	9		2012634-000	56386910610		SPRING, FLAT			
2	8		2012635	57386911660		PLUNGER			
1	7		2011272	56386910350		PLATE, COVER PRISM HOUSING			
1	6		2011270	28386910270		PRISM, LARGE SCT EYEPIECE			
8	5		NAS1352C02LL3	74455157006		SCREW, CAP, SOCKET HEAD SELF-LOCKING			
1	4		2011271	56386910340		PLATE, COVER PRISM HOUSING			
2	3		2011883	56386910360		SPRING, ELLIPTICAL SCT PRISM			
1	2		2011269	28386910260		PRISM, SMALL SCT EYEPIECE			
1	1		2012665	50386910160		HOUSING, SCT PRISM			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012667	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911650
DRAWN [illegible] 6/13/64
CHECKED [illegible]
APPROVAL [illegible] 10/14/64
APPROVAL E. Daring [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, SCT PRISM, ASSY OF

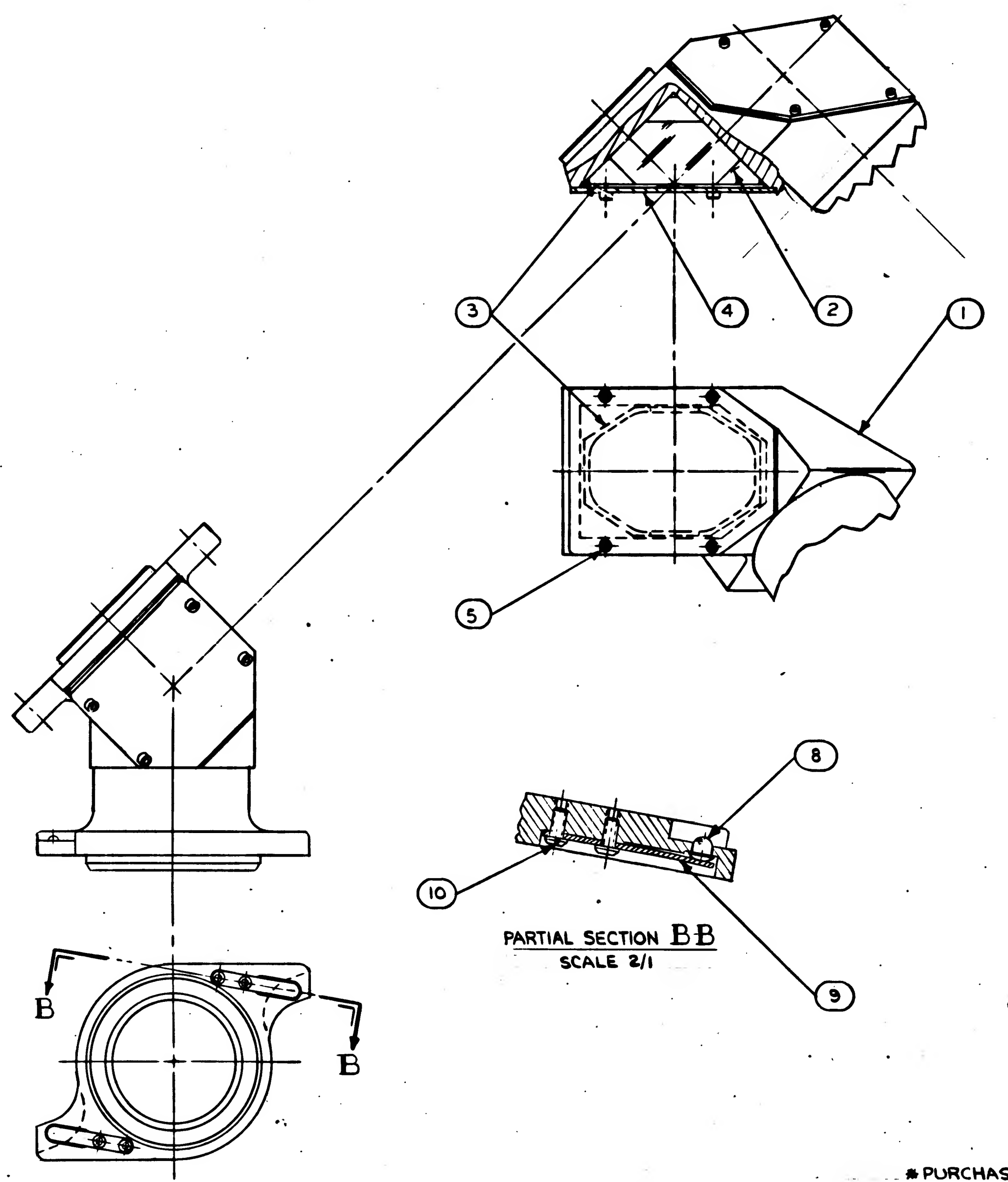
CODE IDENT NO 80230
SIZE D
NASA NUMBER 2012666
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

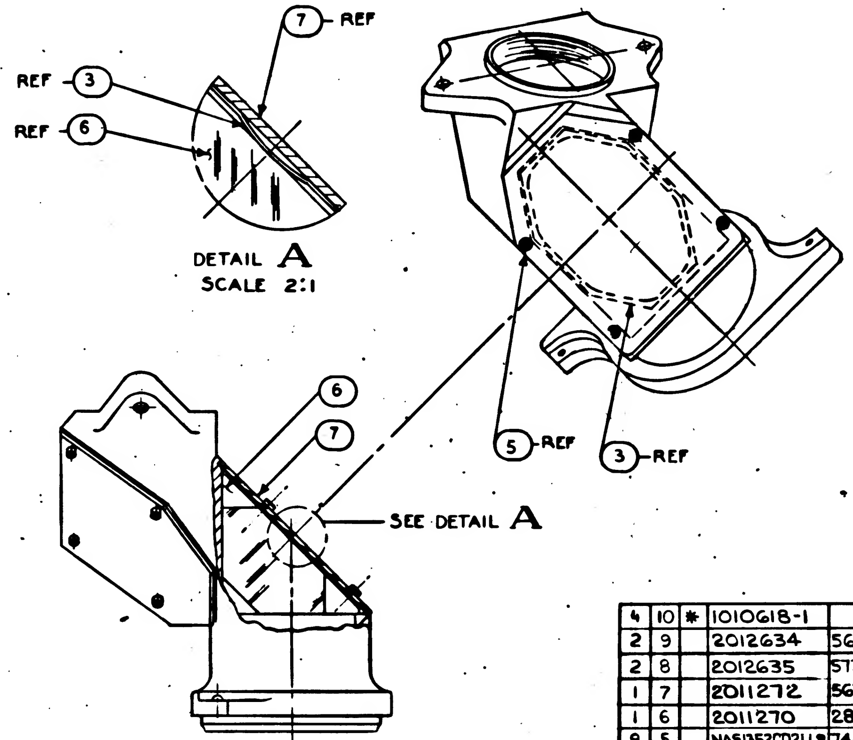
2012666 C

2012666

SYM	ZONE	REVISIONS TORR 23366 DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND 1002019. (BAGGING)





* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
4	10	*	1010618-1	—		SCREW, BUTTON HD, SELF LOCKING, SOC HEX			
2	9		2012634	56386910610		SPRING, FLAT			
2	8		2012635	57386911660		PLUNGER			
1	7		2011272	56386910350		PLATE, COVER PRISM HOUSING			
1	6		2011270	28386910270		PRISM, LARGE SCT EYEPIECE			
8	5		NAS1352C02LL3	74455157006		SCREW, CAP, SOCKET HEAD SELF-LOCKING			
1	4		2011271	56386910340		PLATE, COVER PRISM HOUSING			
2	3		2011883	56386910360		SPRING, ELLIPTICAL SCT PRISM			
1	2		2011269	28386910260		PRISM, SMALL SCT EYEPIECE			
1	1		2012665	50386910160		HOUSING, SCT PRISM			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012667	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ — −	+ — −	+ — −

DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911650
DRAWN F. J. Diller 8/19/64
CHECKED H.E. Prussey 9-21-65
APPROVAL 10/18/65
APPROVAL E. Throop 10/11/65
NASA APPROVAL A. C.
MIT APPROVAL 10/26/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, SCT PRISM,
ASSY OF

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012666
SCALE 1/1
WEIGHT
CALC
ACTUAL
SHEET 1 OF 1

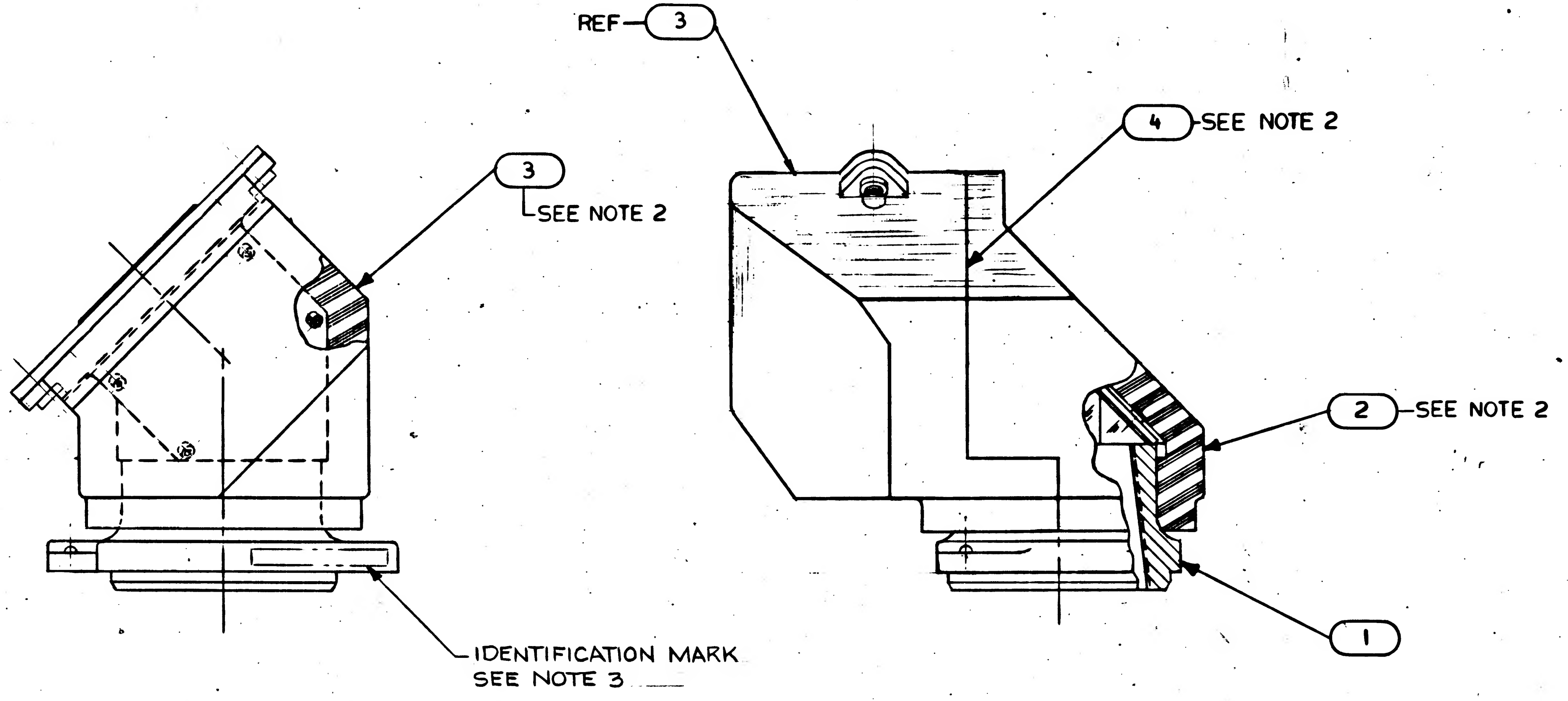
2012667 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28357	5/4/66	WK
B		REVISED PER TDRR 29294	6-7-66	

REVISIONS TDRR 23366

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. COAT MATING SURFACES OF BOTH INSULATIONS (ITEMS 2 AND 3) WITH ADHESIVE, ITEM 4, BEFORE ASSEMBLY. ALLOW TO DRY TO HIGH TACK BEFORE JOINING.
3. IDENTIFY USING NASA PART NO. & SERIAL NO. AND MANUFACTURER'S SYMBOL PER ND1002019.
4. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF, PS2012667.



QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	4	*	1010838	———		ADHESIVE-PRESSURE SENSITIVE SILICONE			
1	3		2012686	26386910620		INSULATION, THERMAL, SCT PRISM HOUSING			
1	2		2012711	26386910650		INSULATION, THERMAL, SCT PRISM HOUSING			
1	1		2012666-000	85386911650		HOUSING, SCT PRISM, ASSY OF			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911660

DRAWN DATE 8/20/65
CHECKED 9-21-65
APPROVAL 10/11/65
APPROVAL 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE SCT PRISM HOUSING AND INSULATION, ASSEMBLY OF

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012667
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

2012667 B

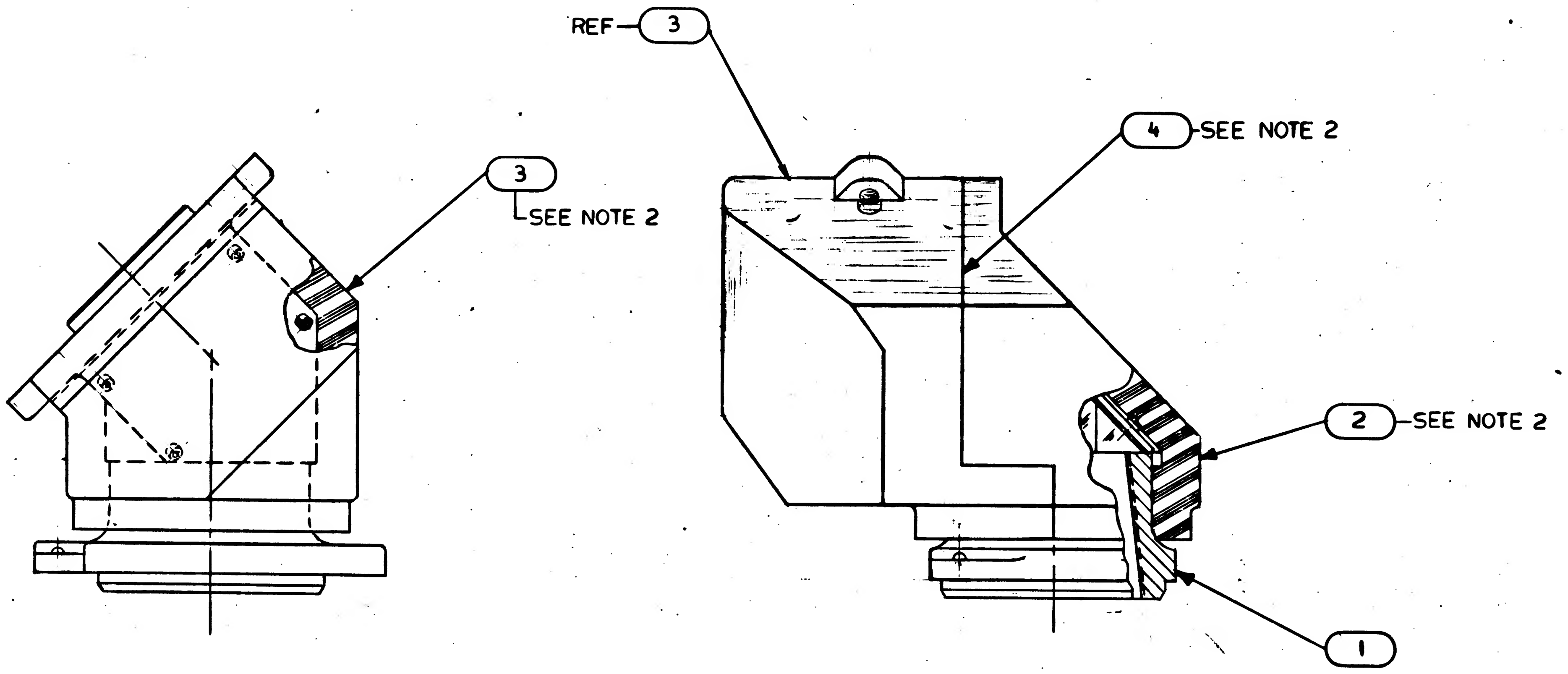
AD-1340

2012667

REVISIONS			TDRR 23366	
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. COAT MATING SURFACES OF BOTH INSULATIONS (ITEMS 2 AND 3) WITH ADHESIVE, ITEM 4, BEFORE ASSEMBLY. ALLOW TO DRY TO HIGH TACK BEFORE JOINING.
3. IDENTIFY USING NASA DWG NO., REVISION LETTER, AND MANUFACTURERS SYMBOL PER ND1002019. (TAGGING)



AR	4	*	1010838	———		ADHESIVE-PRESSURE SENSITIVE SILICONE			
1	3		2012686	26386910620		INSULATION, THERMAL, SCT PRISM HOUSING			
1	2		2012711	26386910650		INSULATION, THERMAL, SCT PRISM HOUSING			
1	1		2012666-000	85386911650		HOUSING, SCT PRISM, ASSY OF			
000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
QTY REQD	LIST OF PARTS AND MATERIALS								

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± ~	± ~

DO NOT SCALE THIS DRAWING

MATERIAL ~

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911660

DRAWN J. Sullivan DATE 8/20/65
CHECKED H.E.P. 9-21-65
APPROVAL E. Rushman 10/11/65
APPROVAL E. Thomas 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT PRISM HOUSING
AND INSULATION,
ASSEMBLY OF

CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012667
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

AD-1340

2012667

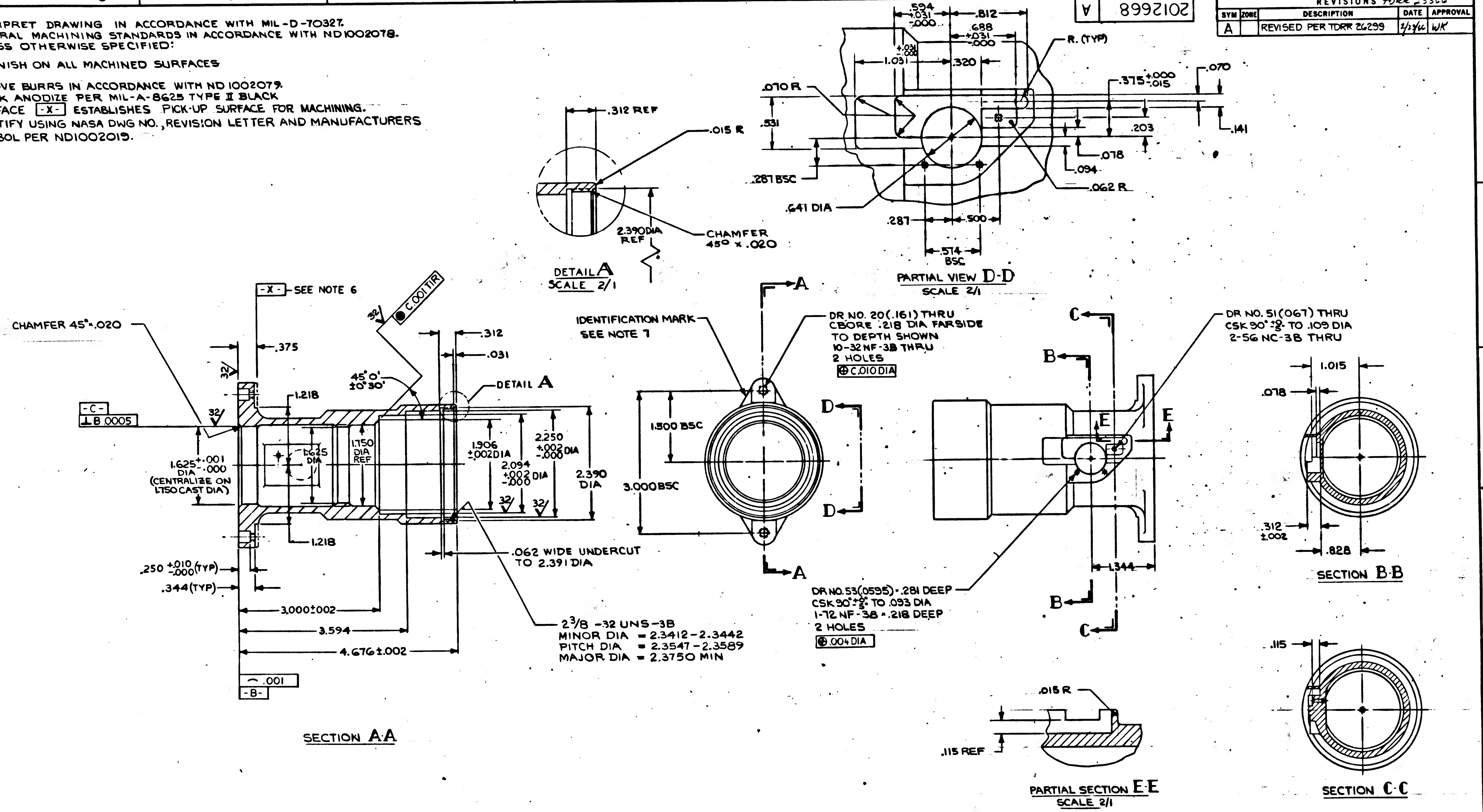
MASTER

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63/ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

A	2012668

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26299	2/23/66	WK



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012690	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL 2012670

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910170

DRAWN DATE 8/30/64
CHECKED H.E.Prussey 9-21-65
APPROVAL 10/8/65
APPROVAL 10/11/65
NASA APPROVAL
MIT APPROVAL 26 Oct 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LONG EYE RELIEF
EYEPIECE, SCT

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012668
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET OF 1

10/11/65

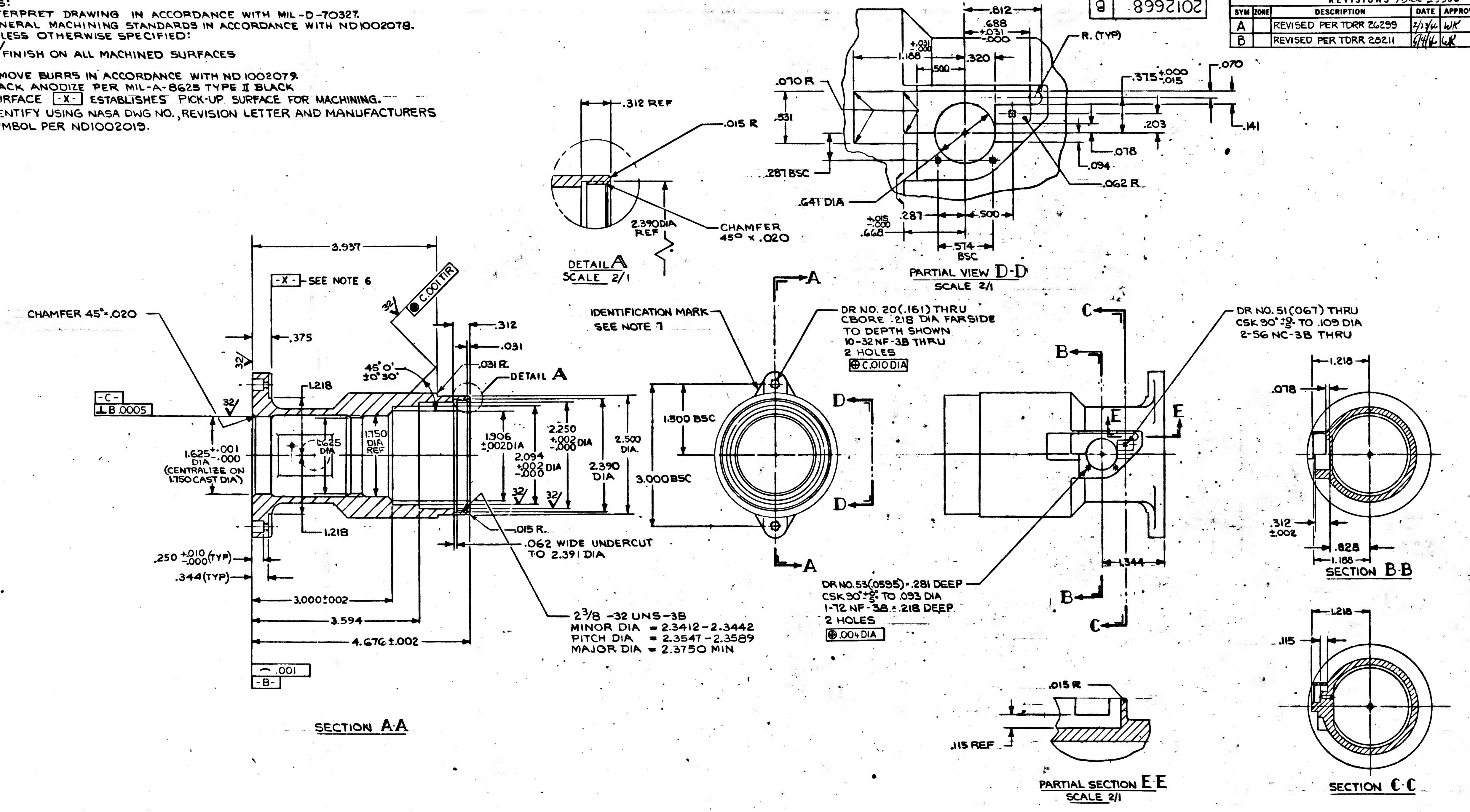
MASTER

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
63/√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

2012668 B

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26299	2/23/66	WK
B		REVISED PER TDRR 28211	6/4/66	WK



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012690	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012670
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910170
DRAWN DATE 8/30/64
CHECKED H.E. Pressey 9-21-65
APPROVAL 10/8/65
APPROVAL E. Thomp 10/11/65
NASA APPROVAL
MIT APPROVAL W Kupfer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LONG EYE RELIEF
EYEPIECE, SCT

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012668
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET OF 1

10/11/65

MASTER

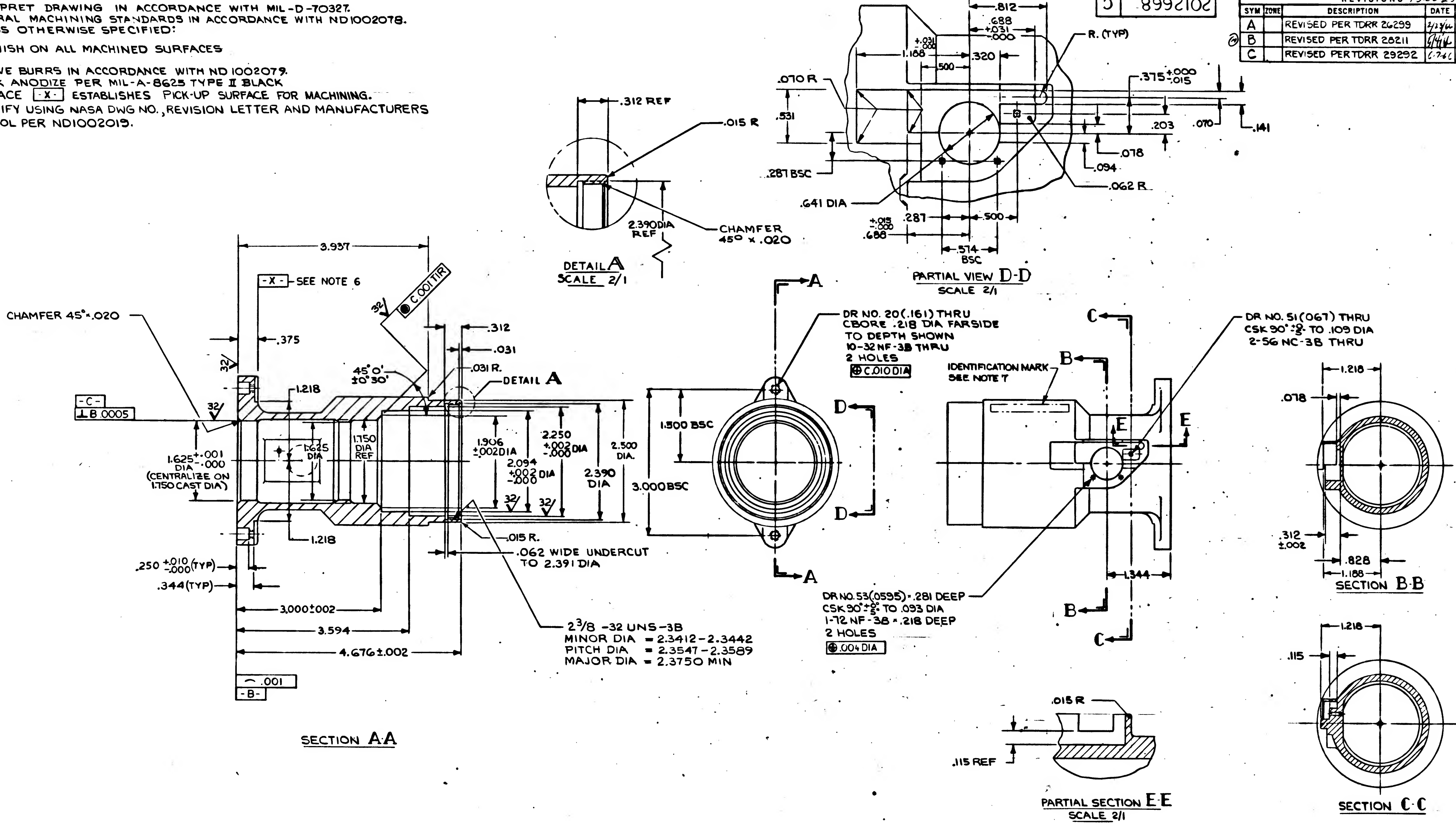
2012668 B

2012668 C

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
63√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26299	2/23/66	WK
B		REVISED PER TDRR 28211	5/4/66	WK
C		REVISED PER TDRR 29292	6-7-66	MM



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012690	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
2012670

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910170

DRAWN J. Schuller DATE 8/30/64
CHECKED H. Creasey 9-21-65
APPROVAL J. Anderson 10/8/65
APPROVAL E. Thomp 10/11/65
NASA APPROVAL E. C. [illegible]
MIT APPROVAL W. Kupfer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LONG EYE RELIEF
EYEPIECE, SCT

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012668
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

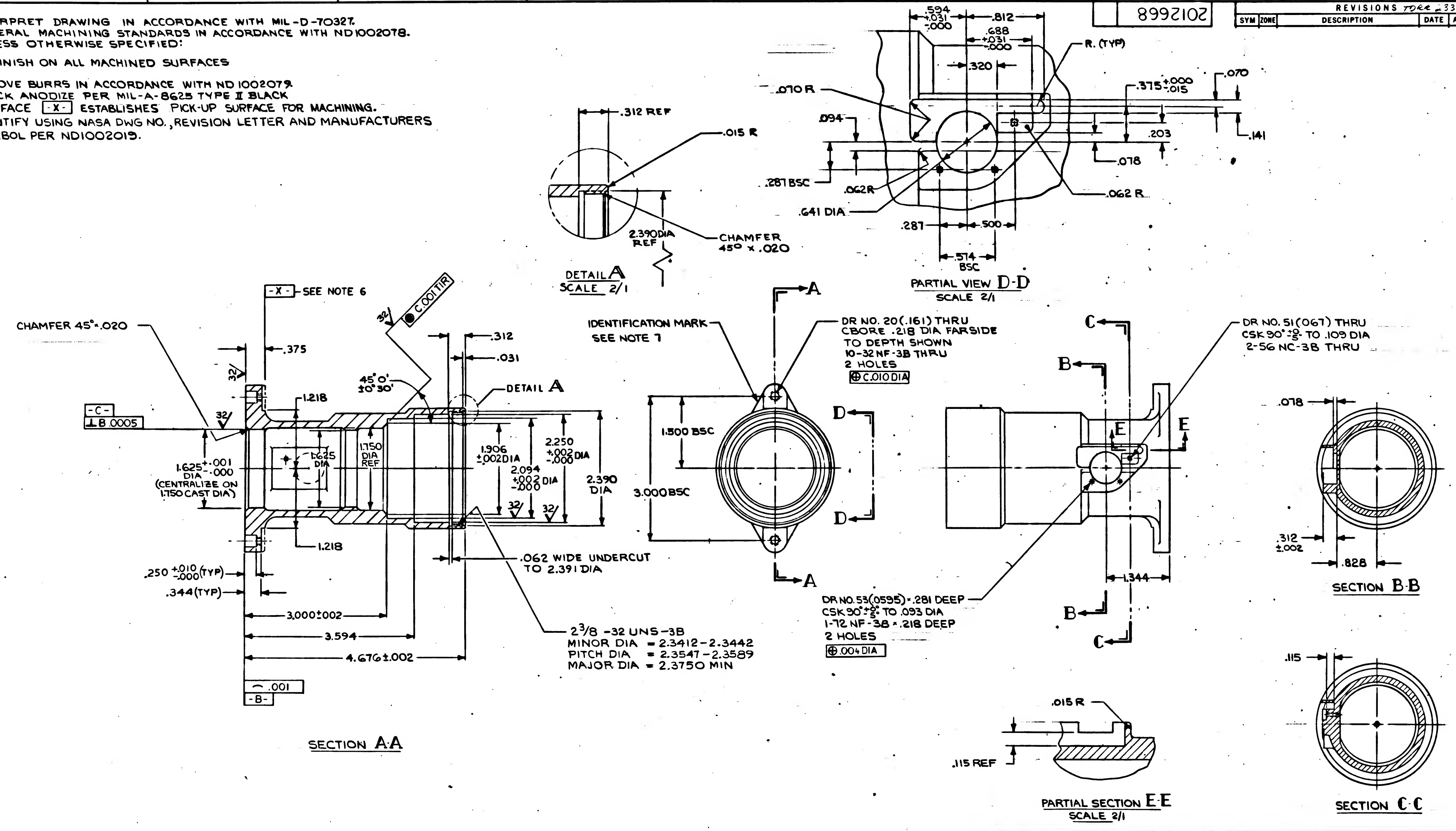
10/15/57

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
$\overset{63}{\checkmark}$ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

2012668

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL



LIST OF PARTS AND MATERIALS

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

NEXT ASSY	USED ON
2012690	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012670
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910170
DRAWN DATE 8/30/64
CHECKED H.E. Prussey 9-21-65
APPROVAL 10/4/65
APPROVAL E. Thomp 10/11/65
NASA APPROVAL
MIT APPROVAL 26 Oct 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LONG EYE RELIEF
EYEPIECE, SCT

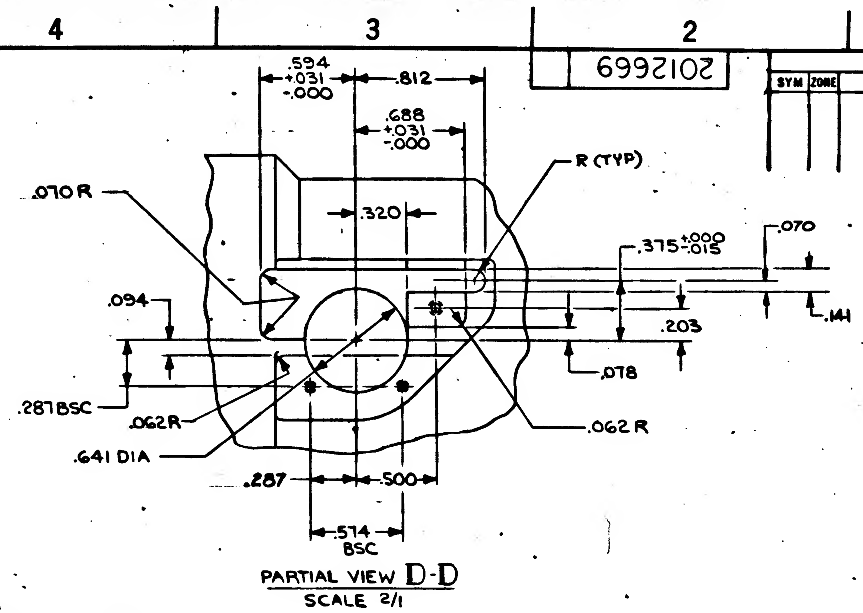
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012668
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

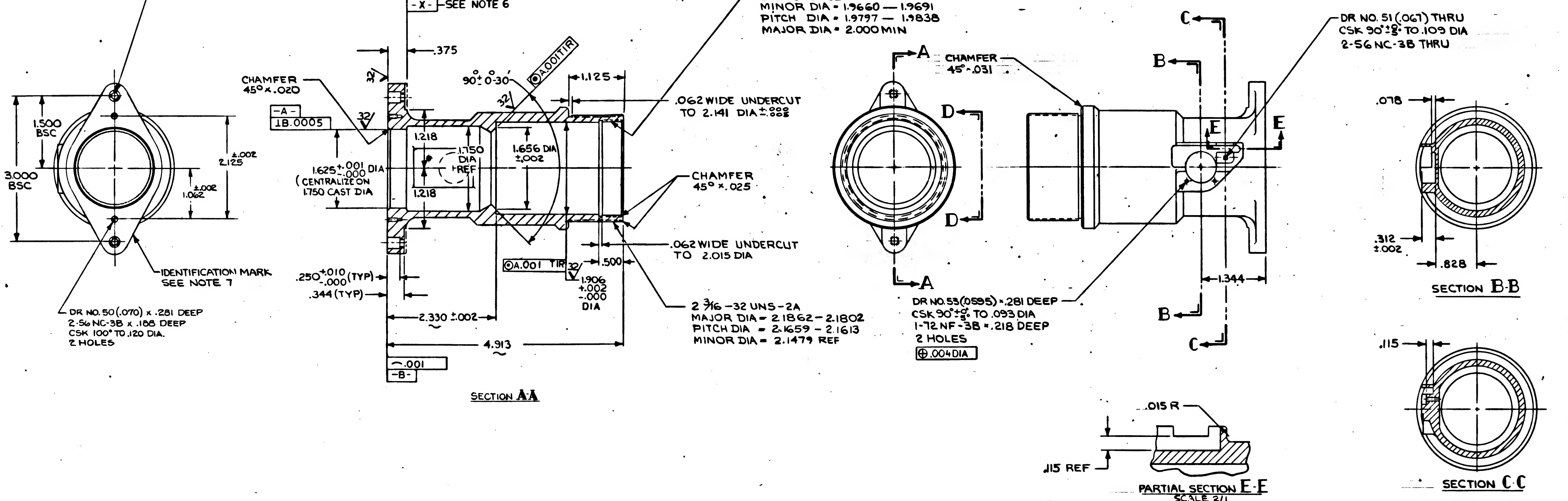
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
63/√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

2012669

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



PARTIAL VIEW D-D
SCALE 2/1



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012692	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL 2012670
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910180
DRAWN DATE 8/31/65
CHECKED H E Pursey 9-21-65
APPROVAL 10/4/65
APPROVAL E. Thomp 10/11/65
NASA APPROVAL A. C. MATAREN
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, EYEPIECE SCT

CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012669

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

MASTER

2012669

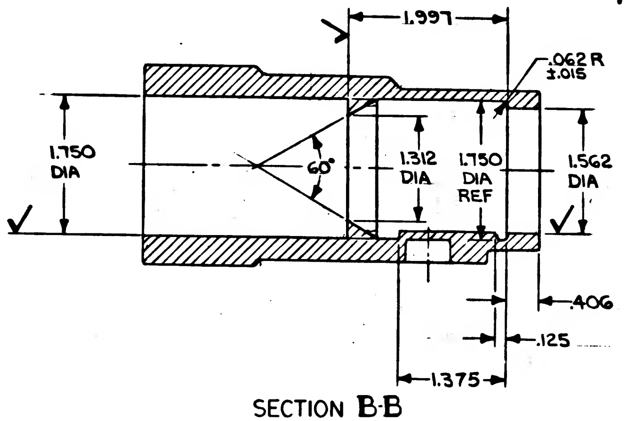
10/4/65 BG

2012670

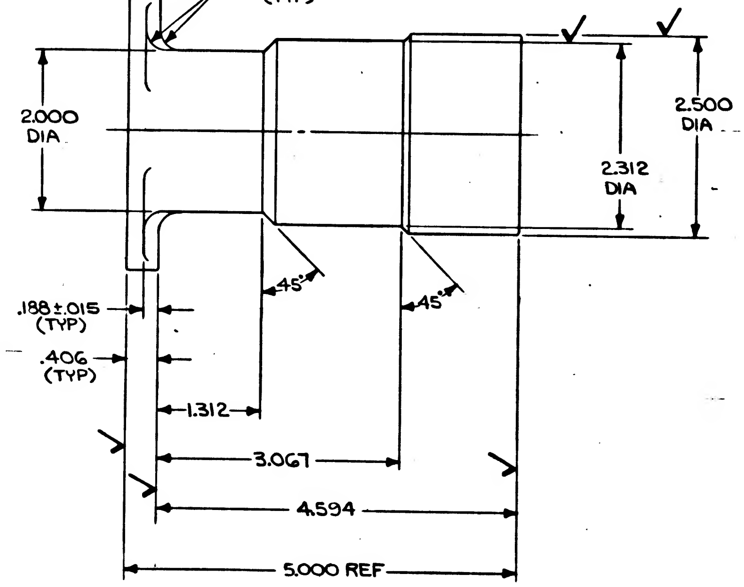
REVISIONS TCRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

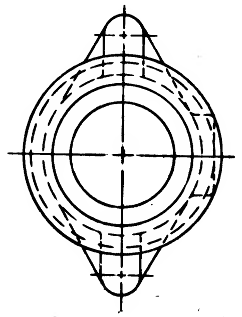
NOTES:

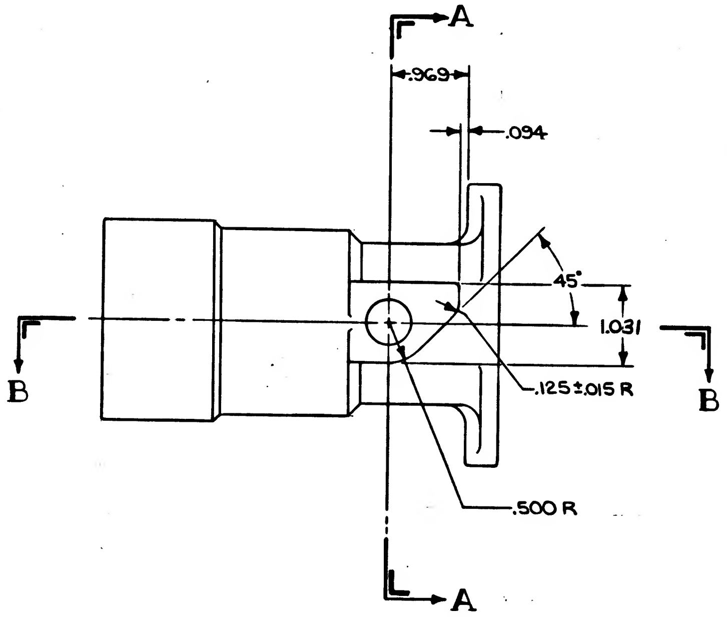
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: INVESTMENT CASTING ALUMINUM ALLOY 356 T6
   FED. SPEC MIL-C-11866 (Ord) ALLOY NO. 356, COND T6
3. CORNER RADII AND FILLETS .031 R UNLESS OTHERWISE SPECIFIED.
4. SURFACES MARKED ✓ WILL BE MACHINED.
   DIMENSIONS INCLUDE ALLOWANCE FOR MACHINING.
5. CASTING TOLERANCE ±.005 INCH/INCH. FOR DIMENSIONS LESS THAN ONE INCH: ±.005
6. SURFACES SUBSEQUENTLY NOT MACHINED TO HAVE
   A CAST FINISH OF 125 RMS (MAX)
7. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S
   SYMBOL PER ND 1002019 (TAGGING).

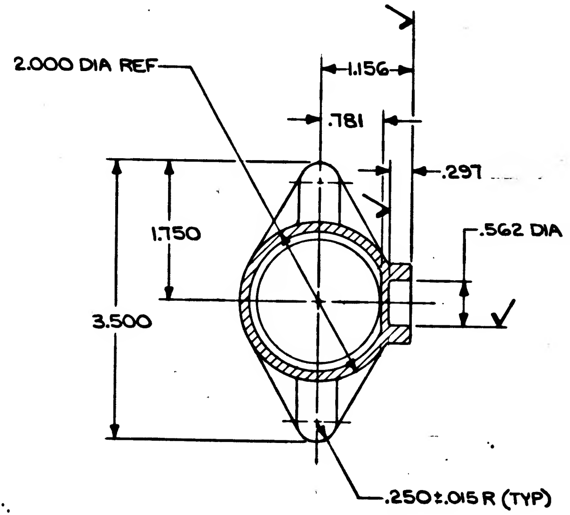


SECTION B-B









MASTER

SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012669	
2012668	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± — ; ANGLES ± 5°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 21386910130
DRAWN J. Saldo DATE 9-1-65
CHECKED H.E. Presey 9-21-65
APPROVAL E. [illegible] 10/11/65
APPROVAL E. Thomp 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W [illegible] for [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, EYEPIECE, SCT
(CASTING)

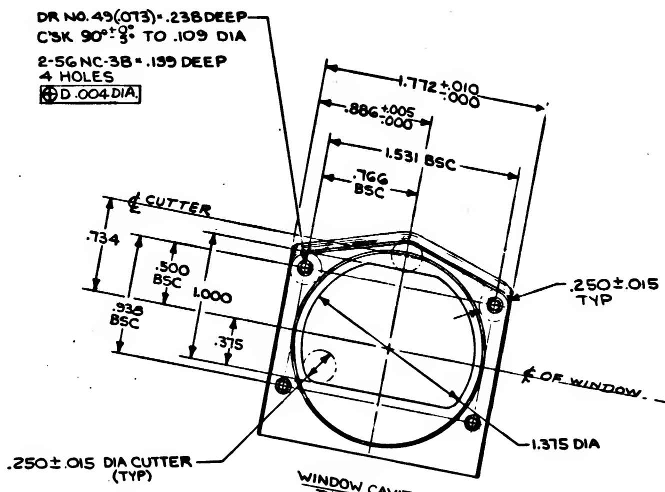
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012670
SCALE 1/1
WEIGHT
CALC
ACTUAL
SHEET 1 OF 1

10/11 [illegible]

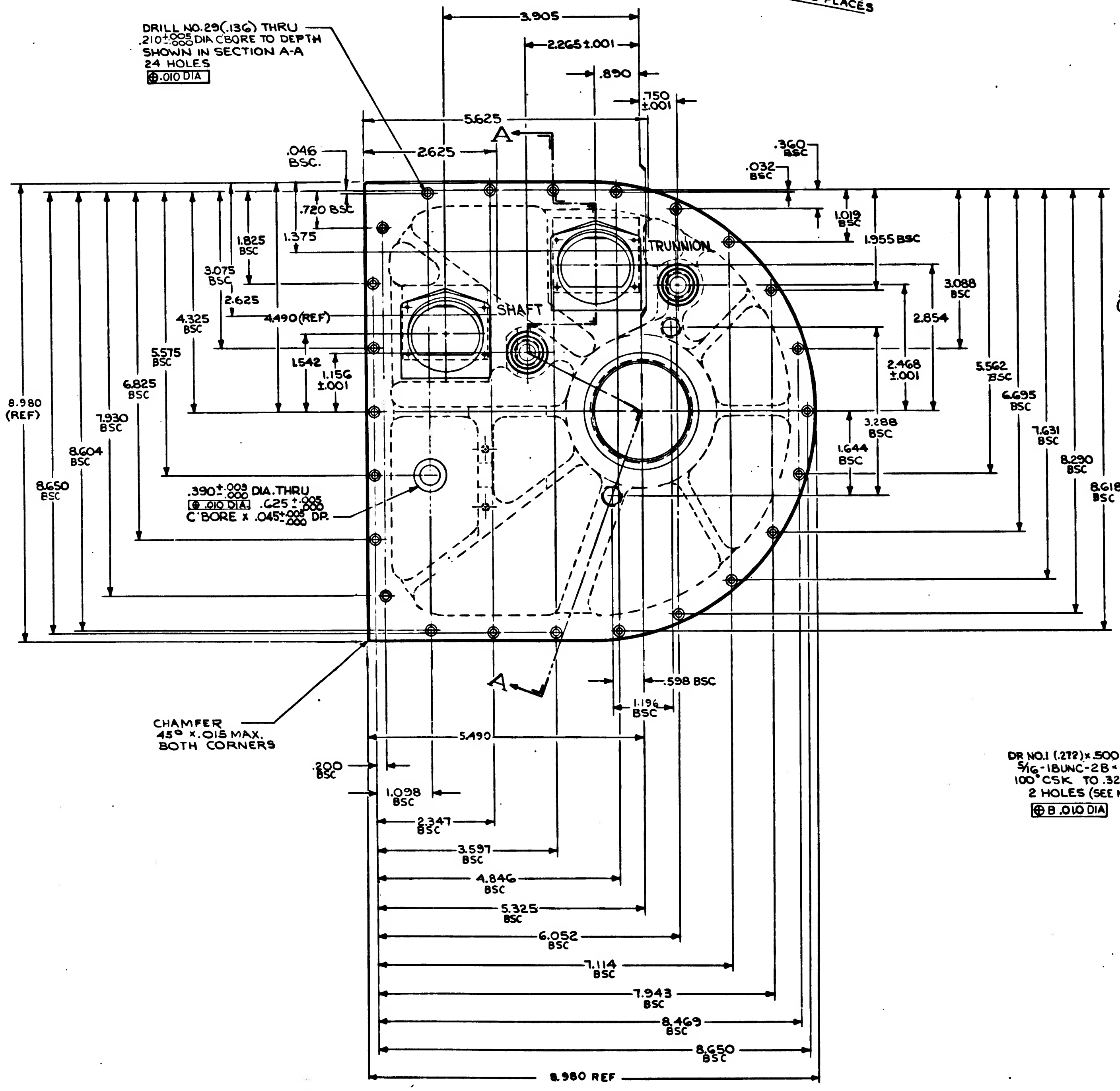
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 63/ FINISH ALL OVER.
   b. √ BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
   a. ENGRAVE CHARACTERS 3/16 HIGH PER ND1002122 TYPE II, CLASS I.
   b. FILL ENGRAVED CHARACTERS PER ND1002130 (WHITE).
8. APPLY COATING 1012543-001, IN ACCORDANCE WITH ND1002277.
9. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER SYMBOL PER ND1002019 (BAGGING OR TAGGING).

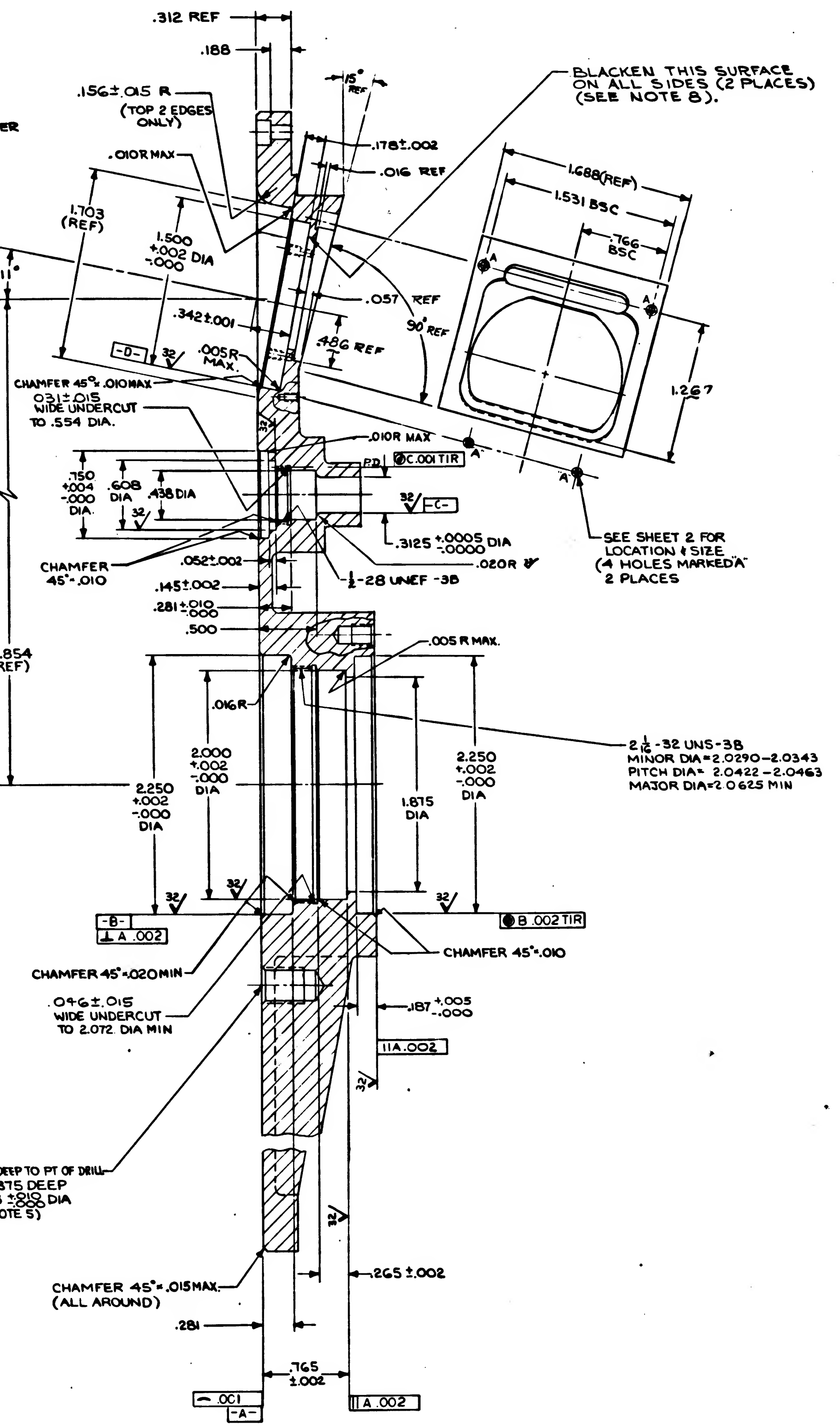
2012671

REVISIONS TDRR# 22603				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



WINDOW CAVITY
TYP 2 PLACES





SECTION A-A
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL BERYLLIUM ND1002125 SEE NOTE 6
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911010
DRAWN DATE 7 Sep 65
CHECKED 9/10/65
APPROVAL
APPROVAL 9/10/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE PANEL, TELESCOPE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012671
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

MASTER

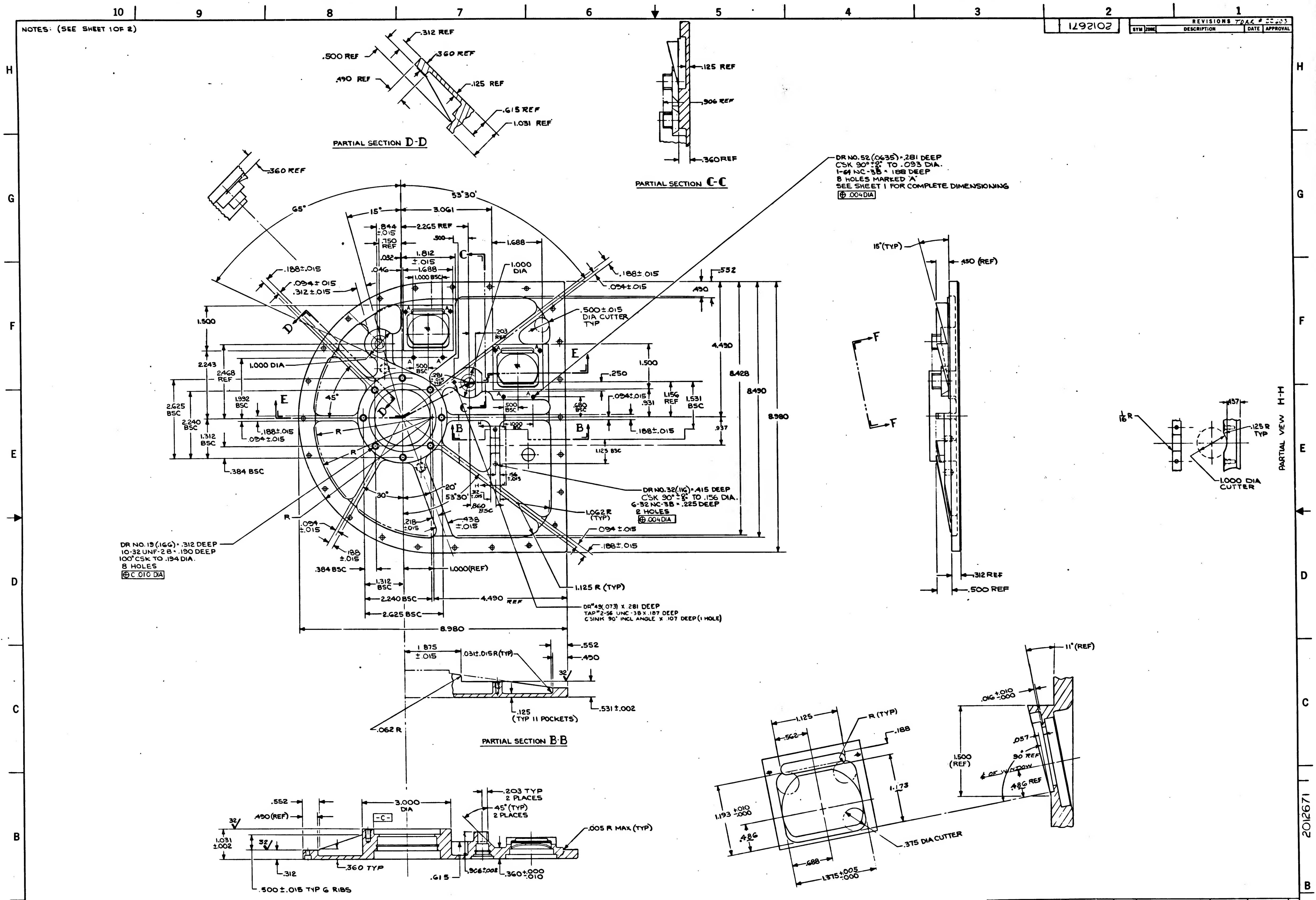
2012671

2012671

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS TDRR # 22603

NOTES: (SEE SHEET 1 OF 2)



SECTION E-E

PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911010
DRAWN DATE 7 Sep 65
CHECKED 9/10/65
APPROVAL
APPROVAL E. Thomp 9/10/65
NASA APPROVAL
MIT APPROVAL 21 Sept 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, TELESCOPE

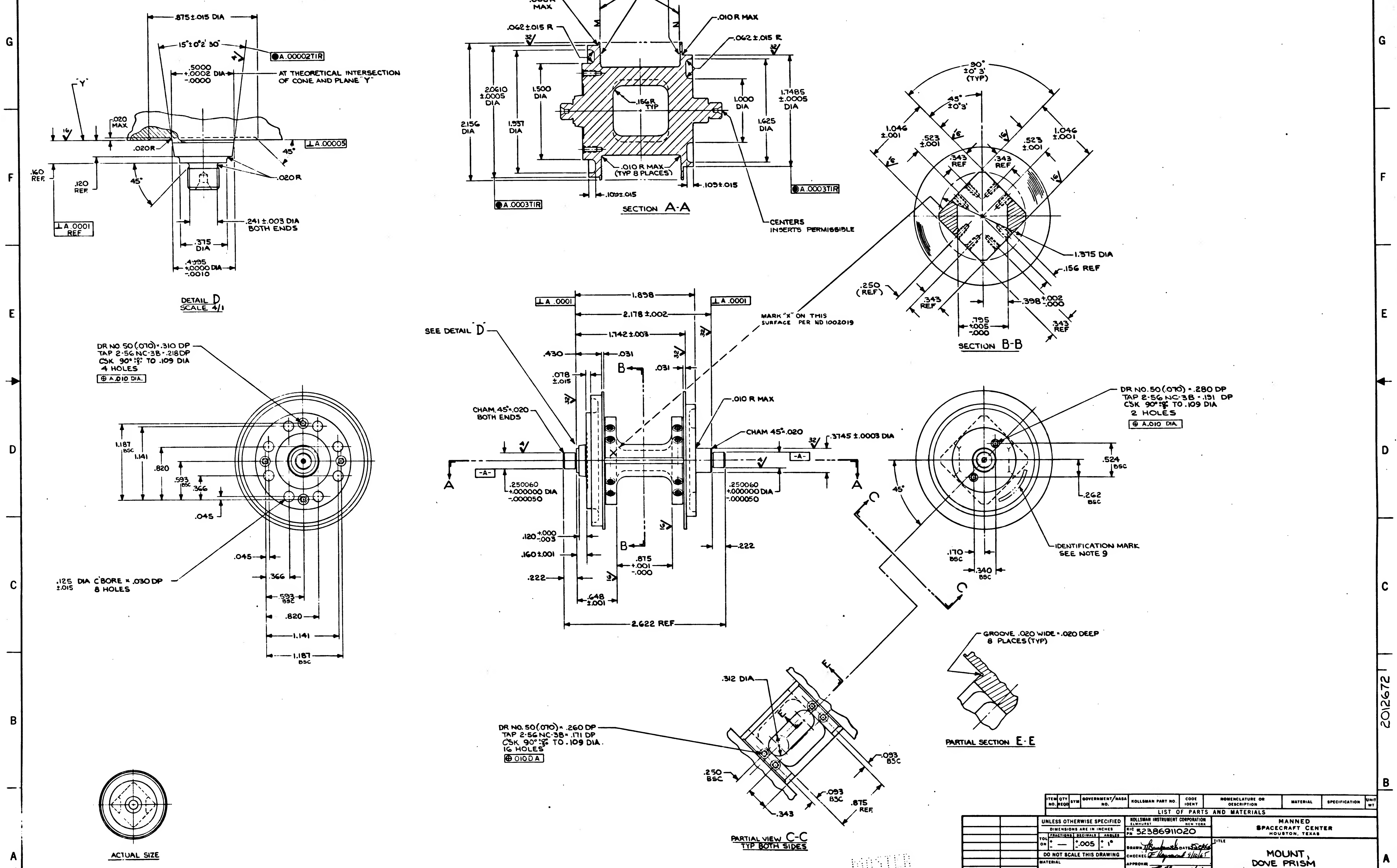
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012671
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

2012671

2012672

NOTES
1. INTERPRET DWG IN ACCORD WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORD WITH ND 1002078
3. UNLESS OTHERWISE SPECIFIED:
a. 63√ FINISH ALL OVER.
b. BREAK SHARP CORNERS IN ACCORD WITH ND 1002078
4. REMOVE BURRS IN ACCORD WITH ND 1002079
5. MATL: BERYLLIUM IN ACCORD WITH ND1002125
6. HEAT TREAT (STABILIZE & STRESS RELIEVE) PER ND1002114.
7. ALL MEASUREMENTS ARE BASED ON 68°F.
8. SURFACES M & N AND ALL SURFACES BETWEEN THEM SHALL BE BLACK ANODIZED IN ACCORDANCE WITH ND 1002127 TYPE I. ANODIZING OF OUTSIDE EDGES CREATED BY 2.156 DIAMETERS AND TAPPED HOLES BETWEEN SURFACES "M" AND "N" IS OPTIONAL
9. IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURES SYMBOL PER ND1002019.

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011197	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 5

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911020
DRAWN [illegible] DATE 3 Sep 65
CHECKED E Raymond 9/10/65
APPROVAL
APPROVAL E. [illegible] 9/10/65
[illegible]
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
MOUNT, DOVE PRISM

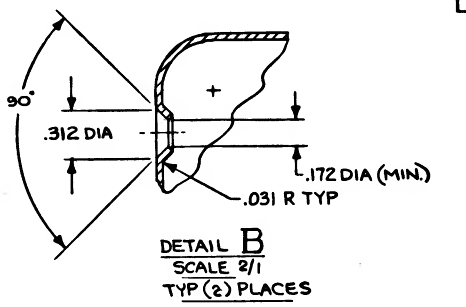
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012672
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5.a. COAT ENTIRE SURFACE IN ACCORDANCE WITH MIL-C-5541, CLASS 2
   b. PAINT INSIDE SURFACE (EXCEPT AREA DESIGNATED BY .156 DIM AND AREA AROUND .172 DIA HOLES DESIGNATED BY .562 DIA.) AND PAINT OUTSIDE SURFACE AROUND CUTOUT AND AROUND .687 DIA HOLE DESIGNATED BY .120 DIM (INCLUDING EDGES OF CUTOUT AND .687 DIA HOLE) USING BLACK PAINT (1012543-001) IN ACCORDANCE WITH ND1002277.
(NOTES CONT)

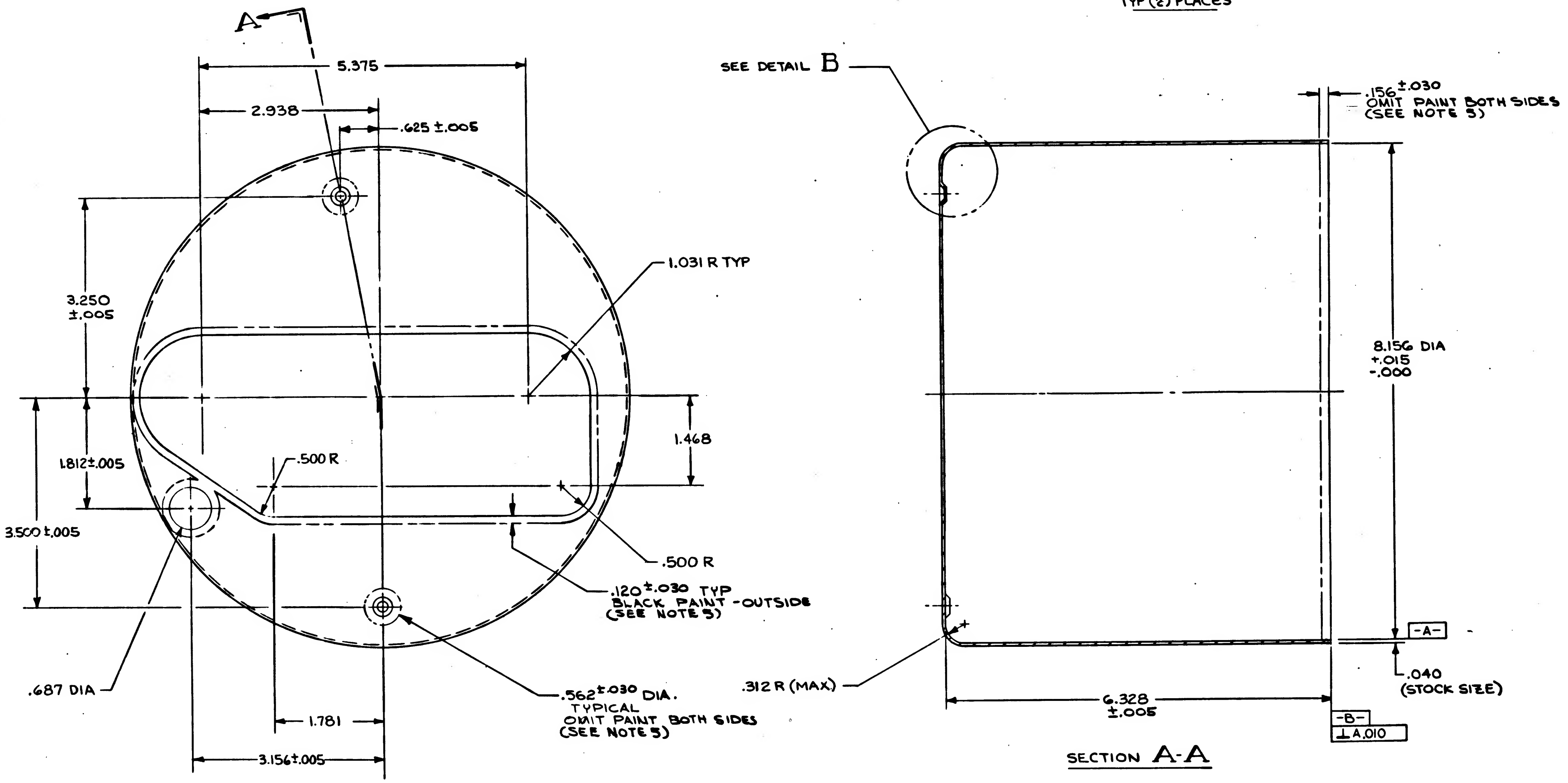
NOTES (CONT)
   c. PAINT OUTSIDE SURFACE, EXCEPT AREA DESIGNATED BY .156 DIM., SURFACE B AND AREA AROUND .172 DIA HOLES DESIGNATED BY .562 DIA. AND AREA SHOWN TO BE BLACK, USING WHITE PAINT (1012543-002) IN ACCORDANCE WITH ND 1002277.
6. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND 1002019 (BAGGING OR TAGGING).

2012675

REVISIONS TDRR # 22603				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



DETAIL B
SCALE 2/1
TYP (2) PLACES



SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .015	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL ALUMINUM ALLOY FED. SPEC QQ-A-250/8 TEMPER O
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910190
DRAWN J. Banbowski DATE 8 Sep 65
CHECKED F. Raymond 9/10/65
APPROVAL
APPROVAL Z. Thomp 9/10/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER,
SEXTANT HEAD

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012675
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012675

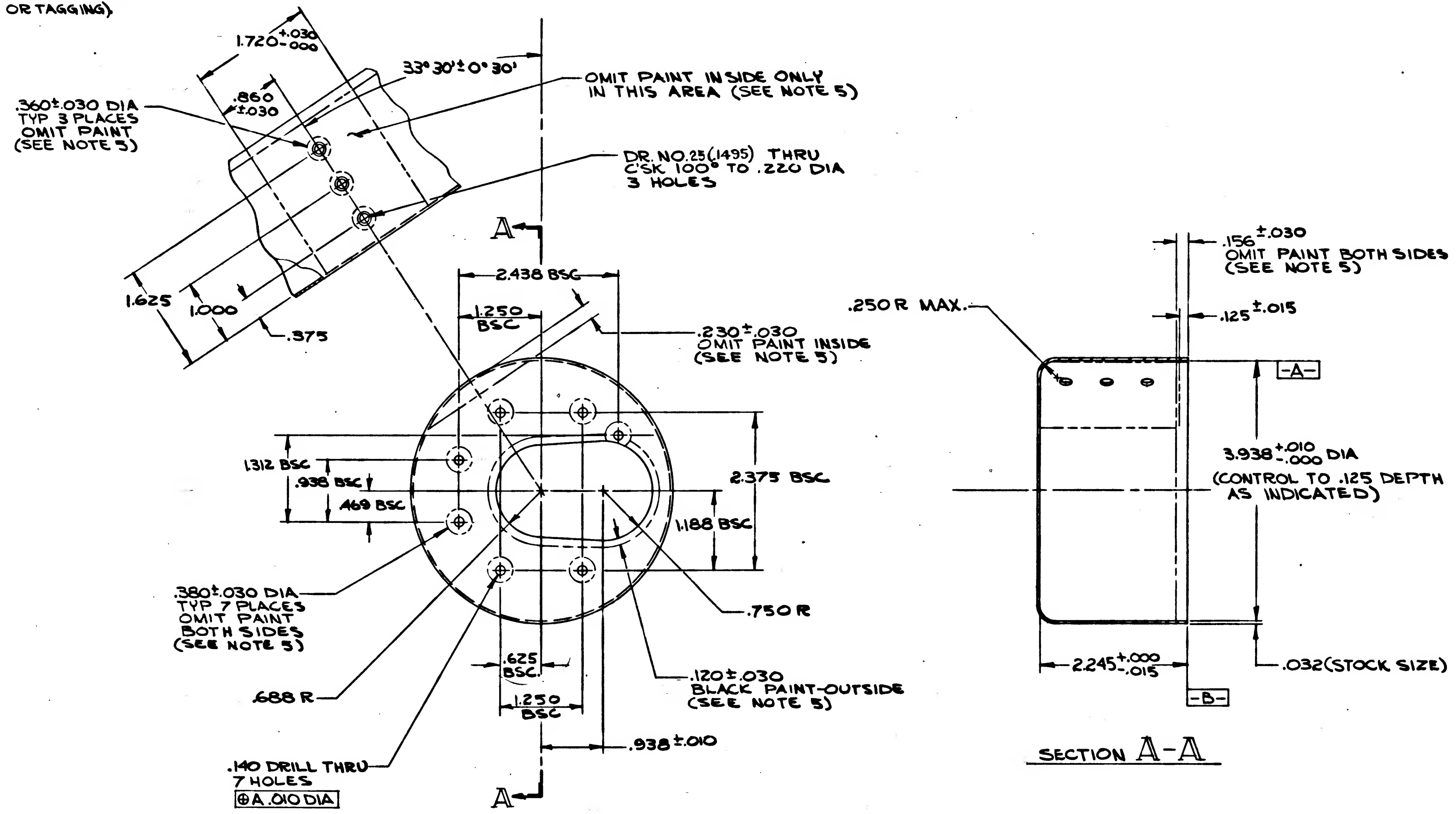
MASTER

2012676 A

REVISIONS TDRR# 22603				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 23071		WK

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. a. COAT ENTIRE SURFACE IN ACCORDANCE WITH MIL-C-5541, CLASS 2
   b. PAINT INSIDE SURFACE (EXCEPT AREAS DESIGNATED BY .156, .860, 1.720 AND .230 DIMS. AND AREAS AROUND 7 HOLES DESIGNATED BY .380 DIA.) AND PAINT OUTSIDE SURFACE AROUND CUTOUT DESIGNATED BY .120 DIM.(INCLUDING EDGES OF CUTOUT) USING BLACK PAINT (1012543-001) IN ACCORDANCE WITH ND1002277.
   c. PAINT OUTSIDE SURFACE (EXCEPT AREA DESIGNATED BY .156 DIM. AND AREA AROUND 10 HOLES DESIGNATED BY .360 DIA AND .380 DIA., SURFACE B AND AREA SHOWN TO BE BLACK) USING WHITE PAINT (1012543-002) IN ACCORDANCE WITH ND1002277.
6. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND1002019, (BAGGING OR TAGGING).


1.720 +.030 -.000
33°30'±0°30'
OMIT PAINT INSIDE ONLY IN THIS AREA (SEE NOTE 5)
.360±.030 DIA TYP 3 PLACES OMIT PAINT (SEE NOTE 5)
.860 ±.030
DR. NO.25(.1495) THRU C'SK 100° TO .220 DIA 3 HOLES
1.625
1.000
.375
A
2.438 BSC
1.250 BSC
.230±.030 OMIT PAINT INSIDE (SEE NOTE 5)
1.312 BSC
.938 BSC
.469 BSC
2.375 BSC
1.188 BSC
.380±.030 DIA TYP 7 PLACES OMIT PAINT BOTH SIDES (SEE NOTE 5)
.750 R
.688 R
.625 BSC.
1.250 BSC
.120±.030 BLACK PAINT-OUTSIDE (SEE NOTE 5)
.938±.010
.140 DRILL THRU 7 HOLES
⊕A .010 DIA
A
.250 R MAX.
.156±.030 OMIT PAINT BOTH SIDES (SEE NOTE 5)
.125±.015
-A-
3.938 +.010 -.000 DIA (CONTROL TO .125 DEPTH AS INDICATED)
2.245 +.000 -.015
-B-
.032(STOCK SIZE)

SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	2012547
USED ON	2011000
APPLICATION	
UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS	± —
TOL ON DECIMALS	±.005
TOL ON ANGLES	± —
	DO NOT SCALE THIS DRAWING
MATERIAL	ALUMINUN ALLOY FED SPEC QQ-A-250/8 TEMPER O
CONTRACT	
KOLLSMAN INSTRUMENT CORPORATION	ELMHURST NEW YORK
KIC PN	30386910200
DRAWN	DATE 8-30-65
CHECKED	H E Trusey 9-8-65
APPROVAL	
APPROVAL	E. Thorup 9/10/65
NASA APPROVAL	Arthur E. Fitzgerald
MIT APPROVAL	
	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
TITLE	COVER TELESCOPE HEAD
CODE IDENT NO.	80230
SIZE	D
NASA NUMBER	2012676
SCALE	1/1
WEIGHT	CALC ACTUAL
SHEET	1 OF 1

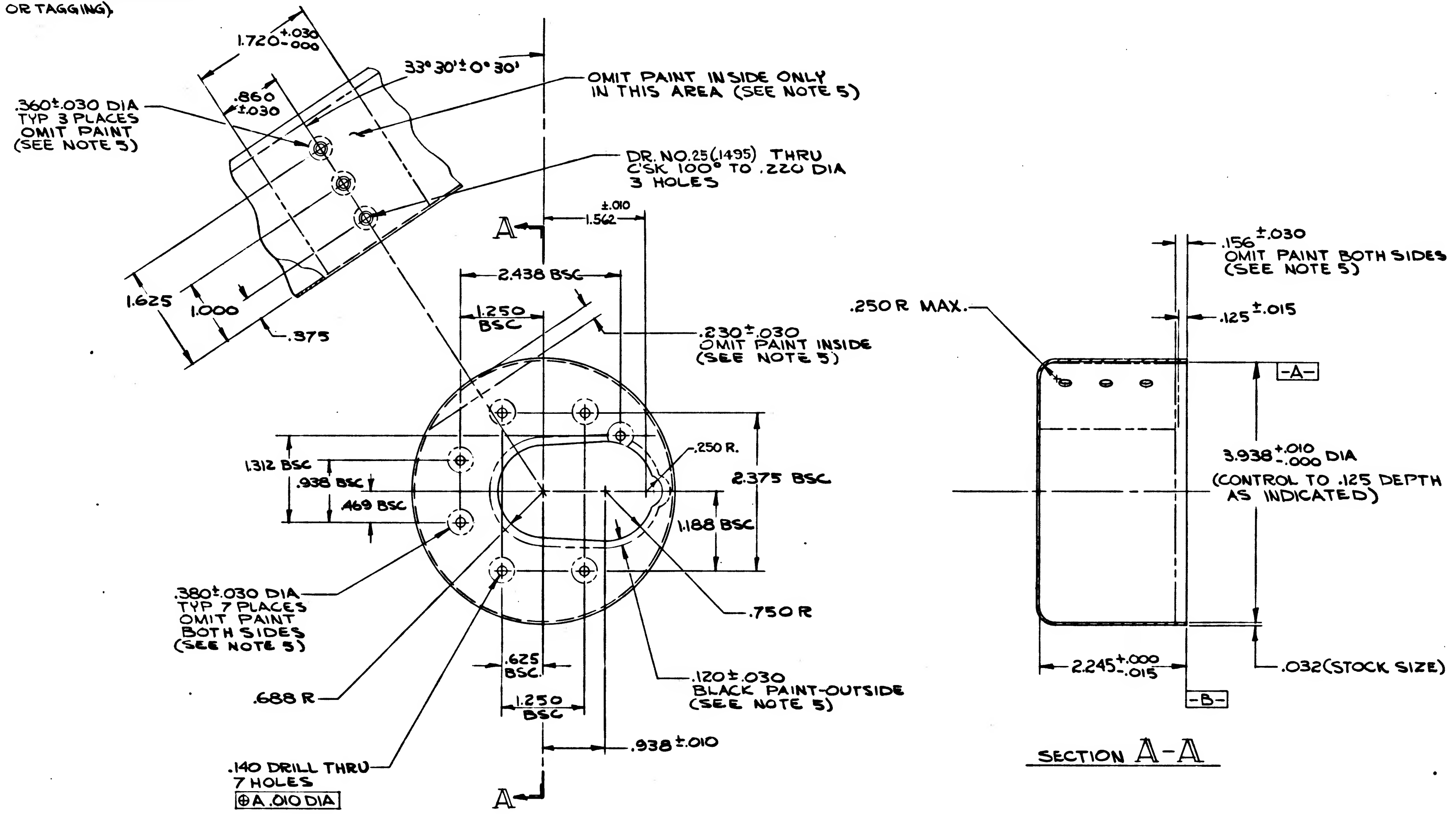
MASTER

B	2012676

REVISIONS TDRR° 22603				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 23071		
B		REVISED PER TDRR 25084	1/11/66	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   $\sqrt[63]{}$ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. a. COAT ENTIRE SURFACE IN ACCORDANCE WITH MIL-C-5541, CLASS 2
   b. PAINT INSIDE SURFACE (EXCEPT AREAS DESIGNATED BY .156, .860, 1.720 AND .230 DIMS. AND AREAS AROUND 7 HOLES DESIGNATED BY .380 DIA.) AND PAINT OUTSIDE SURFACE AROUND CUTOUT DESIGNATED BY .120 DIM.(INCLUDING EDGES OF CUTOUT) USING BLACK PAINT (1012543-001) IN ACCORDANCE WITH ND1002277.
   c. PAINT OUTSIDE SURFACE (EXCEPT AREA DESIGNATED BY .156 DIM. AND AREA AROUND 10 HOLES DESIGNATED BY .360 DIA. AND .380 DIA., SURFACE B AND AREA SHOWN TO BE BLACK) USING WHITE PAINT (1012543-002) IN ACCORDANCE WITH ND1002277.
6. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND1002019, (BAGGING OR TAGGING).


1.720 +.030 -.000
33° 30' ± 0° 30'
OMIT PAINT INSIDE ONLY IN THIS AREA (SEE NOTE 5)
.360 ± .030 DIA TYP 3 PLACES OMIT PAINT (SEE NOTE 5)
.860 ±.030
DR. NO. 25 (.1495) THRU C'SK 100° TO .220 DIA 3 HOLES
A
±.010 1.562
2.438 BSC
1.250 BSC
1.625
1.000
.375
.230 ± .030 OMIT PAINT INSIDE (SEE NOTE 5)
.250 R MAX.
.156 ±.030 OMIT PAINT BOTH SIDES (SEE NOTE 5)
.125 ±.015
-A-
.250 R.
1.312 BSC
.938 BSC
.469 BSC
2.375 BSC
1.188 BSC
3.938 +.010 -.000 DIA (CONTROL TO .125 DEPTH AS INDICATED)
.380 ± .030 DIA TYP 7 PLACES OMIT PAINT BOTH SIDES (SEE NOTE 5)
.750 R
.625 BSC.
.688 R
1.250 BSC
.120 ± .030 BLACK PAINT-OUTSIDE (SEE NOTE 5)
2.245 +.000 -.015
.032 (STOCK SIZE)
-B-
.140 DRILL THRU 7 HOLES
⊕ A .010 DIA
.938 ± .010
A

SECTION A-A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

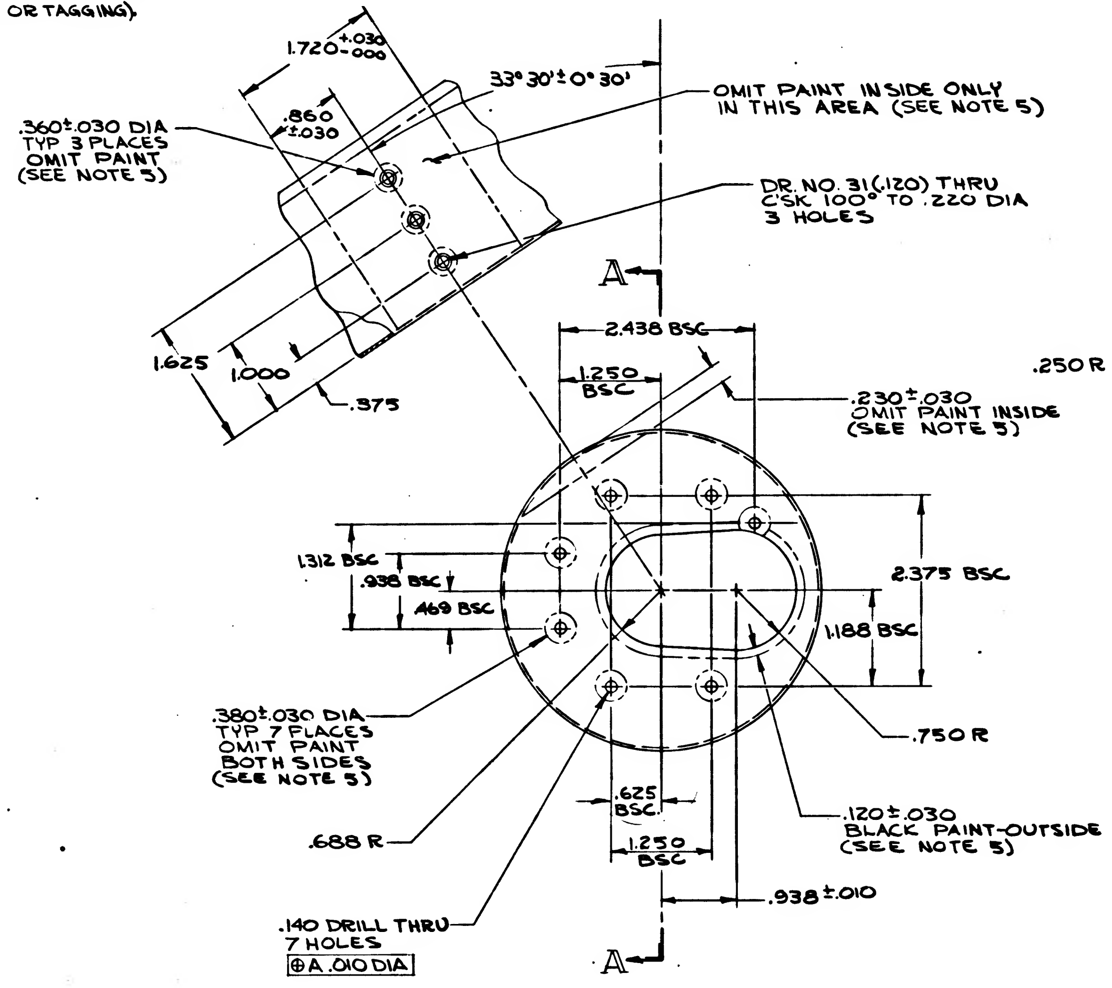
2012547	2011000	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL ON: FRACTIONS ± — ; DECIMALS ± .005 ; ANGLES ± — DO NOT SCALE THIS DRAWING	KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN 50386910200	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL ALUMINUN ALLOY FED SPEC QQ-A-250/8 TEMPER O	DRAWN Bankowski DATE 8-30-65 CHECKED H Chrissy 9-8-65 APPROVAL APPROVAL E. Thorup 9/10/65	TITLE COVER TELESCOPE HEAD
APPLICATION		CONTRACT	Arthur E. Metzger NASA APPROVAL MIT APPROVAL	CODE IDENT NO. 80230 SIZE D NASA NUMBER 2012676 SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

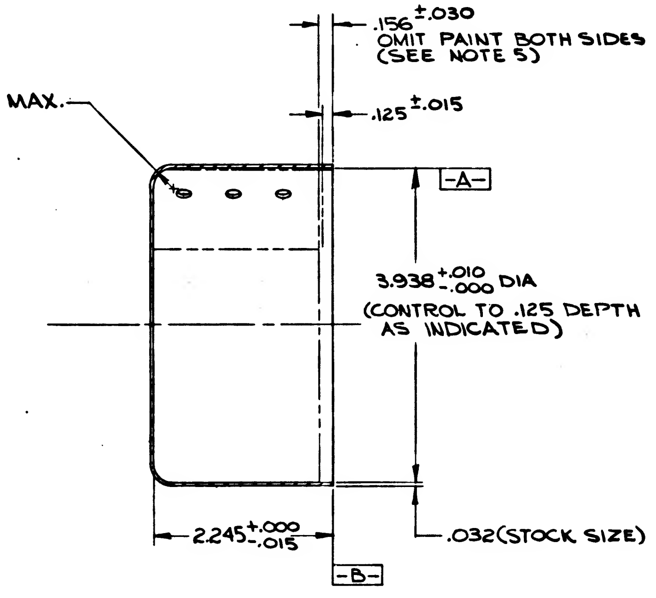
2012676

SYM	ZONE	REVISIONS TDRR # 22603 DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63/√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. a. COAT ENTIRE SURFACE IN ACCORDANCE WITH MIL-C-5541, CLASS 2
   b. PAINT INSIDE SURFACE (EXCEPT AREAS DESIGNATED BY .156, .860, 1.720 AND .230 DIMS. AND AREAS AROUND 7 HOLES DESIGNATED BY .380 DIA.) AND PAINT OUTSIDE SURFACE AROUND CUTOUT DESIGNATED BY .120 DIM.(INCLUDING EDGES OF CUTOUT) USING BLACK PAINT (1012543-001) IN ACCORDANCE WITH ND1002277.
   c. PAINT OUTSIDE SURFACE (EXCEPT AREA DESIGNATED BY .156 DIM. AND AREA AROUND 10 HOLES DESIGNATED BY .360 DIA. AND .380 DIA., SURFACE B AND AREA SHOWN TO BE BLACK) USING WHITE PAINT (1012543-002) IN ACCORDANCE WITH ND1002277.
6. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND1002019, (BAGGING OR TAGGING).


1.720 +.030 -.000
33° 30' ± 0° 30'
OMIT PAINT INSIDE ONLY IN THIS AREA (SEE NOTE 5)
.360±.030 DIA TYP 3 PLACES OMIT PAINT (SEE NOTE 5)
.860 ±.030
DR. NO. 31(.120) THRU C'SK 100° TO .220 DIA 3 HOLES
A
1.625
1.000
.375
2.438 BSC
1.250 BSC
.230±.030 OMIT PAINT INSIDE (SEE NOTE 5)
1.312 BSC
.938 BSC
.469 BSC
2.375 BSC
1.188 BSC
.380±.030 DIA TYP 7 PLACES OMIT PAINT BOTH SIDES (SEE NOTE 5)
.750 R
.625 BSC
1.250 BSC
.688 R
.120±.030 BLACK PAINT-OUTSIDE (SEE NOTE 5)
.938±.010
.140 DRILL THRU 7 HOLES
⊕A .010 DIA
A


.156±.030 OMIT PAINT BOTH SIDES (SEE NOTE 5)
.125±.015
.250 R MAX.
-A-
3.938 +.010 -.000 DIA (CONTROL TO .125 DEPTH AS INDICATED)
2.245 +.000 -.015
-B-
.032(STOCK SIZE)

SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012547	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± —

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUN ALLOY
FED SPEC QQ-A-250/8
TEMPER O

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 30386910200

DRAWN J. Bankowski DATE 8-30-65
CHECKED H. C. Pressey 9-8-65
APPROVAL
APPROVAL E. Thorup 9/10/65
NASA APPROVAL Arthur E. Metzger
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER
TELESCOPE HEAD

CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012676

SCALE 1/1 WEIGHT CALC ACTUAL SHEET OF

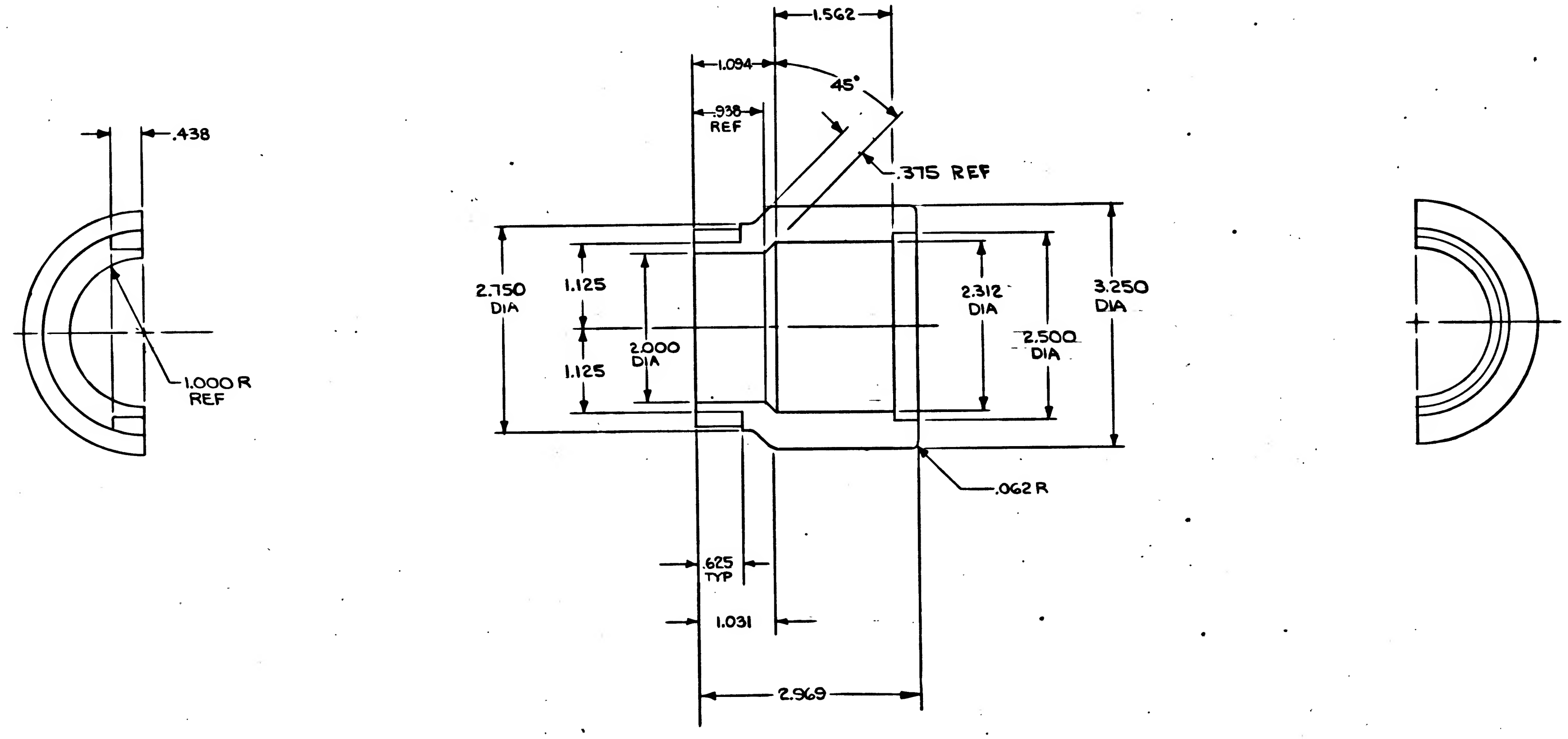
MASTER

2012676

2012682

REVISIONS TDRR 24350				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288 - COLOR, WHITE.
3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .125
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)



2012682

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012693	
2012691	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .030	± 2°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 263869100600

DRAWN DATE 9-3-65
CHECKED H E Pressey 9-21-65
APPROVAL 10/18/65
APPROVAL E. Thorup 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 2-4-66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
INSULATION, THERMAL
SCT LONG EYE RELIEF

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012682
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

10/18/65

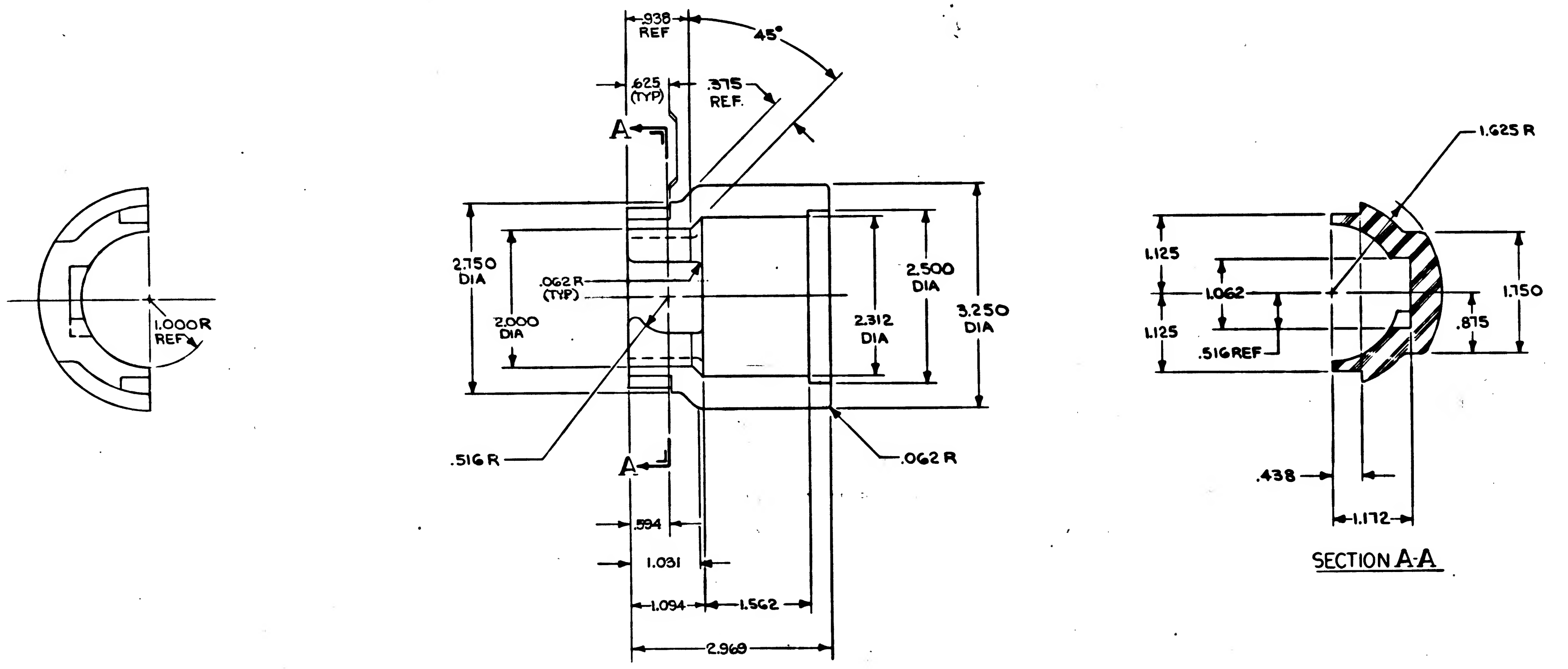
2012683

REVISIONS TDCC 24350				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288- COLOR, WHITE.

3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .125
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012693	
2012691	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .030	± 2°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 26386910610

DRAWN [illegible] DATE 9-8-65
CHECKED H.E. [illegible] 9-21-65
APPROVAL [illegible] 10/11/65
APPROVAL [illegible] 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 2/4/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
INSULATION, THERMAL
SCT LONG EYE RELIEF

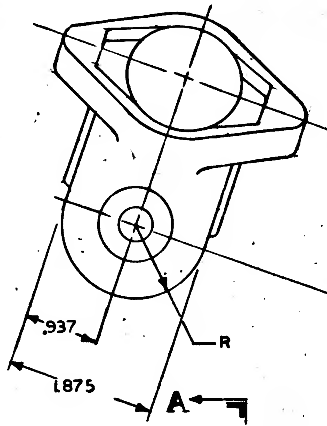
CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012683

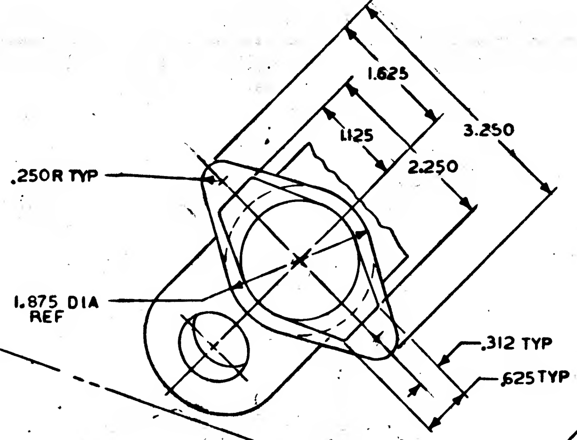
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

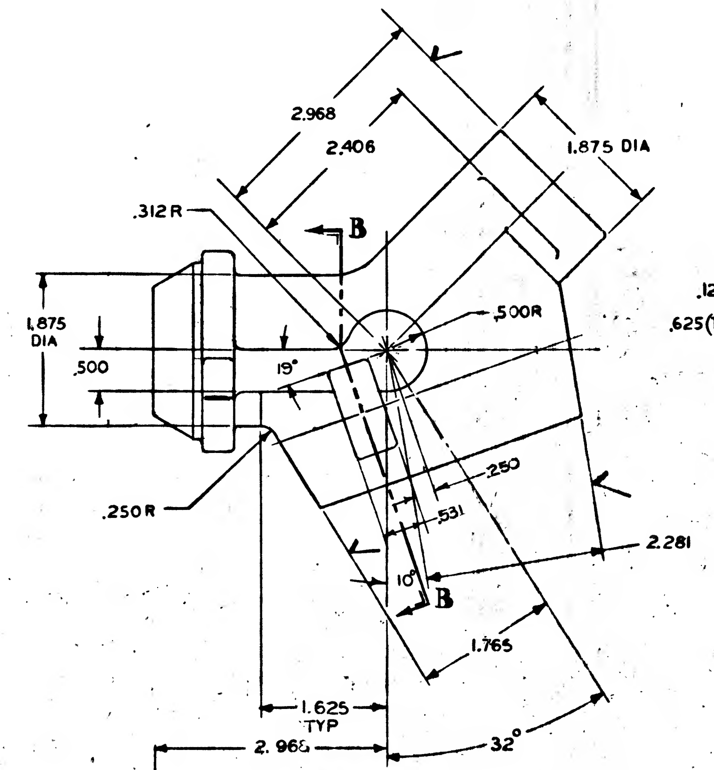
A	2012684

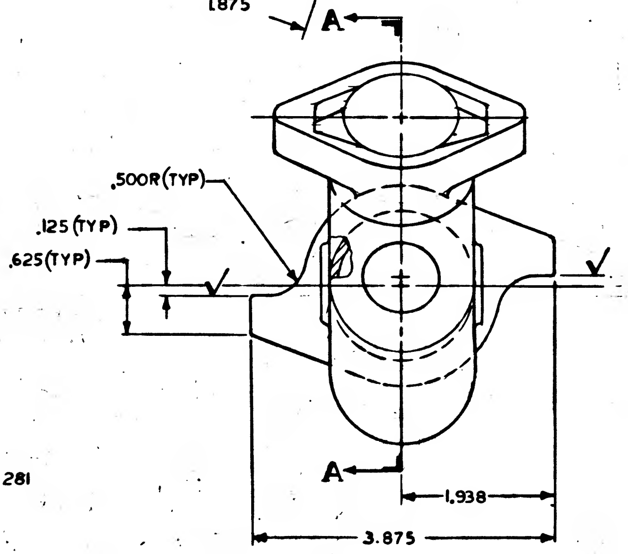
REVISIONS TDRR 2?				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28358	5/7/??	

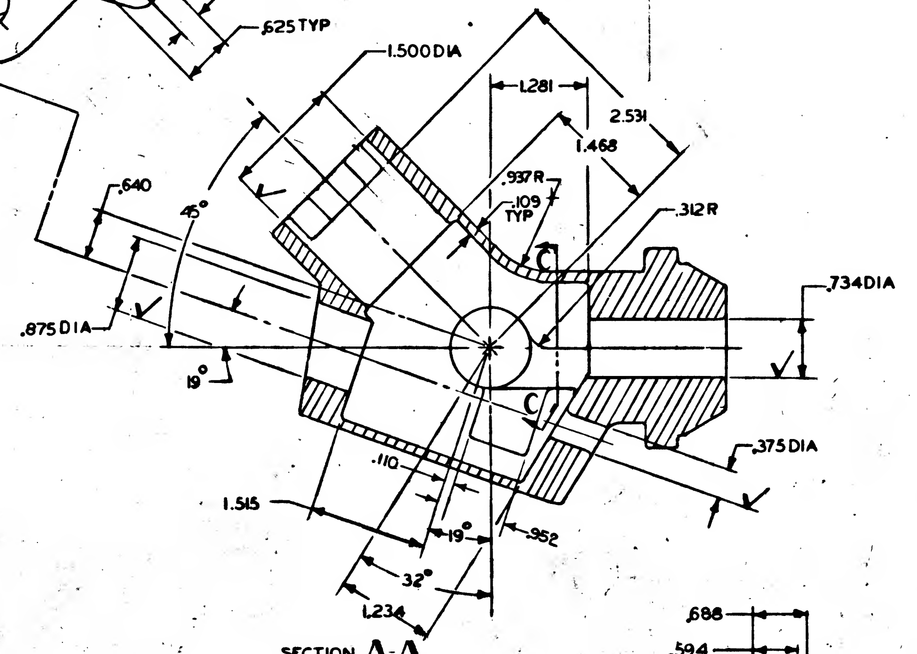
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL :- SAND CASTING ALUMINUM ALLOY 356-T6
   FED. SPEC QQ-A-601 CLASS 3M COND T6
3. CORNER RADII AND FILLETS .062R UNLESS OTHERWISE SPECIFIED
4. SURFACES MARKED ✓ WILL BE MACHINED, DIMENSIONS INCLUDE ALLOWANCE FOR MACHINING.
5. CASTING TOLERANCE ± 1/32 UP TO 4 INCHES, OVER 4 INCHES ± 3/64.
6. DATUM -A- ESTABLISHES "START MACHINING" LOCATION ON DWG. 2012685
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAGGING)



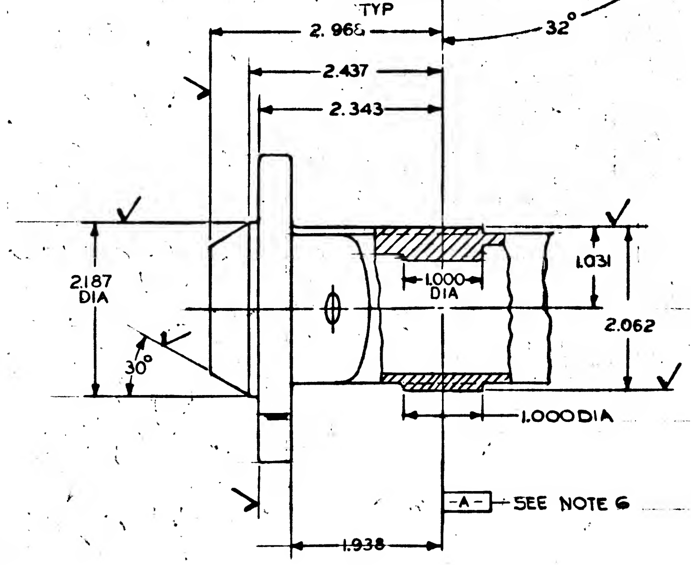


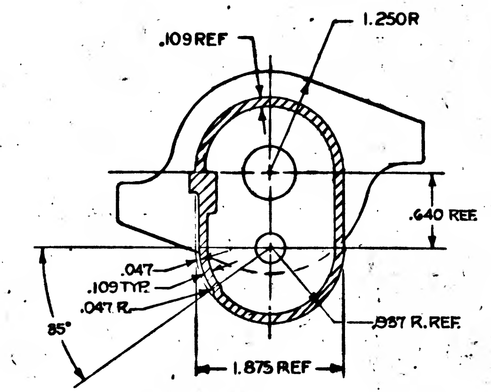




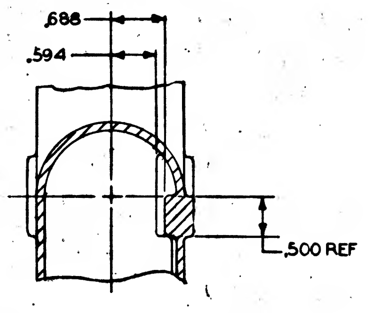


SECTION A-A





SECTION B-B



PARTIAL SECTION C-C

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012685	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 21386910140

DRAWN E. DRAPALA DATE 8-31-65
CHECKED P. A. Leone 9/20/65
APPROVAL G. Ruhmann 10/11/65
APPROVAL E. Thomas 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, MIRROR
SEXTANT EYEPIECE
(CASTING)

CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012684

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012684

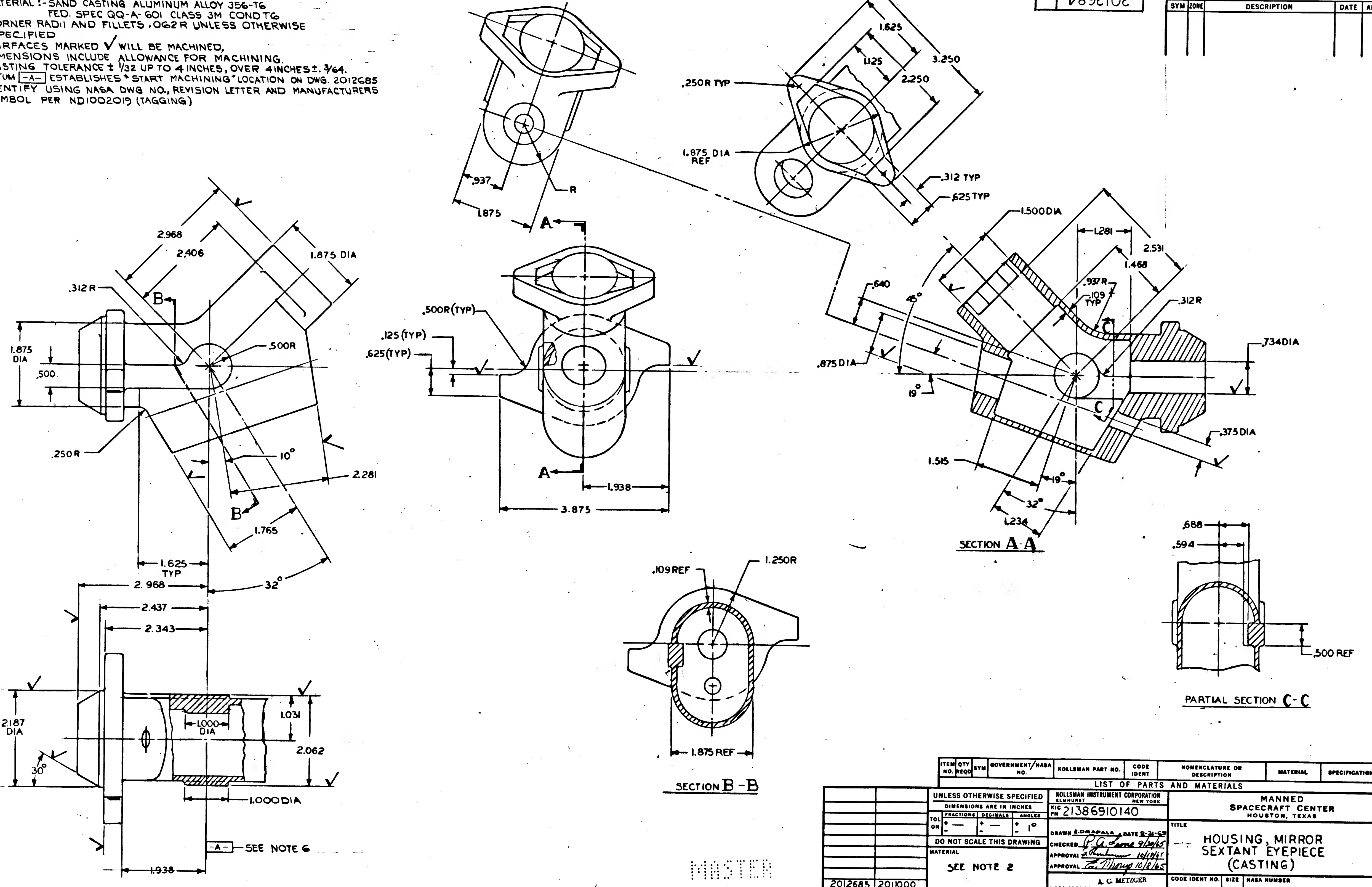
2012684

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS TCRR 23366

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL:- SAND CASTING ALUMINUM ALLOY 356-T6 FED. SPEC QQ-A-601 CLASS 3M COND T6
3. CORNER RADII AND FILLETS .062R UNLESS OTHERWISE SPECIFIED
4. SURFACES MARKED ✓ WILL BE MACHINED, DIMENSIONS INCLUDE ALLOWANCE FOR MACHINING.
5. CASTING TOLERANCE ± 1/32 UP TO 4 INCHES, OVER 4 INCHES ± 3/64.
6. DATUM $\boxed{-A-}$ ESTABLISHES "START MACHINING" LOCATION ON DWG. 2012685
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (TAGGING)



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012685	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 21386910140
DRAWN E. DRAPALA DATE 8-31-65
CHECKED P. A. Lane 9/20/65
APPROVAL 10/19/65
APPROVAL 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, MIRROR
SEXTANT EYEPIECE
(CASTING)

CODE IDENT NO. 80230 SIZE D NASA NUMBER 2012684
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

MASTER

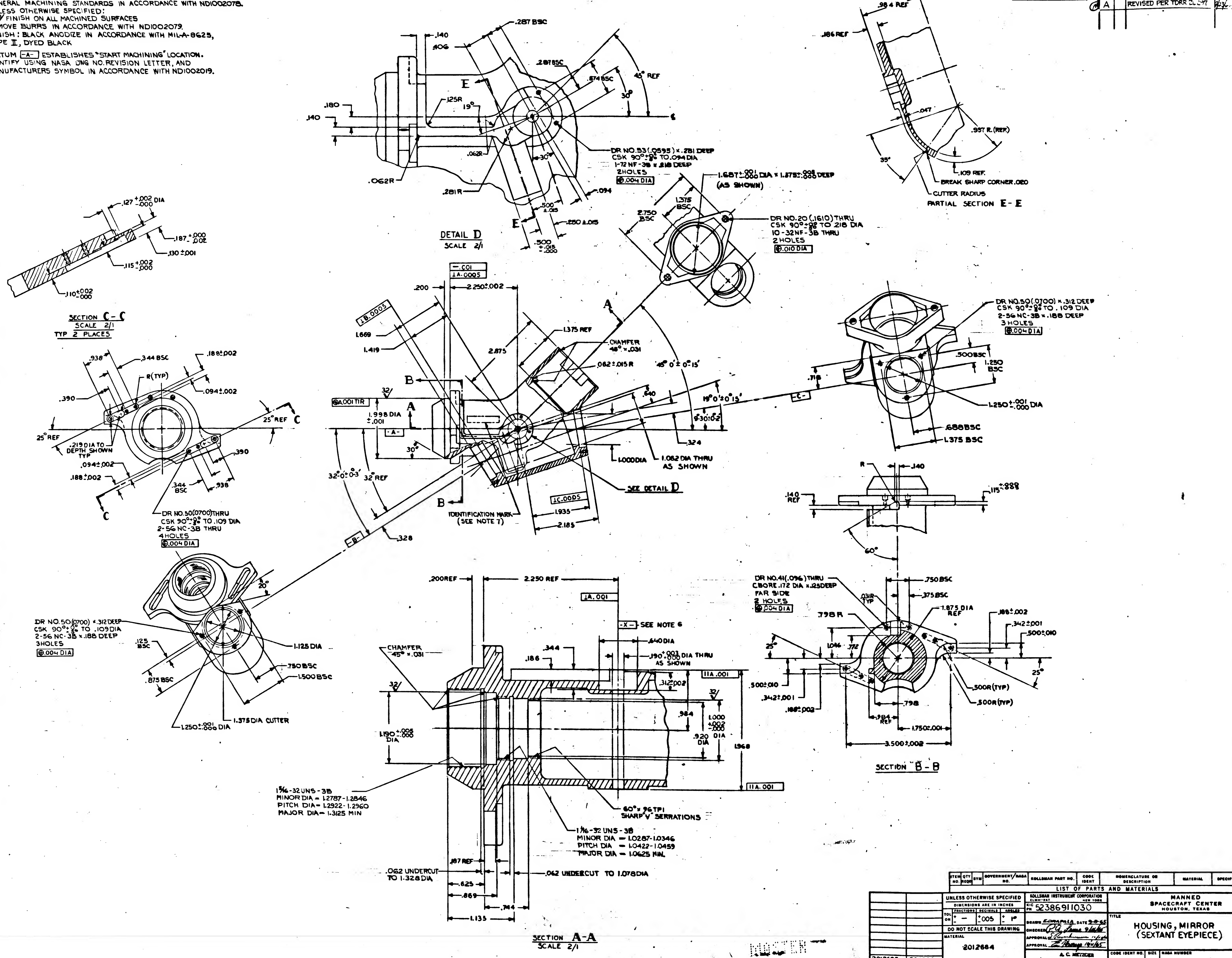
E-188

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
63✓ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, DYED BLACK
6. DATUM -A- ESTABLISHES "START MACHINING" LOCATION.
7. IDENTIFY USING NASA DWG NO. REVISION LETTER, AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.

2012685 A

REVISIONS TDCC 23365

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 20247	9/23/66	K.K.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012684
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911030
DRAWN E.CORAPALA DATE 9-8-65
CHECKED P.G. Lane 9/16/65
APPROVAL E. Buchman 10/1/65
APPROVAL E. Rhoney 10/1/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

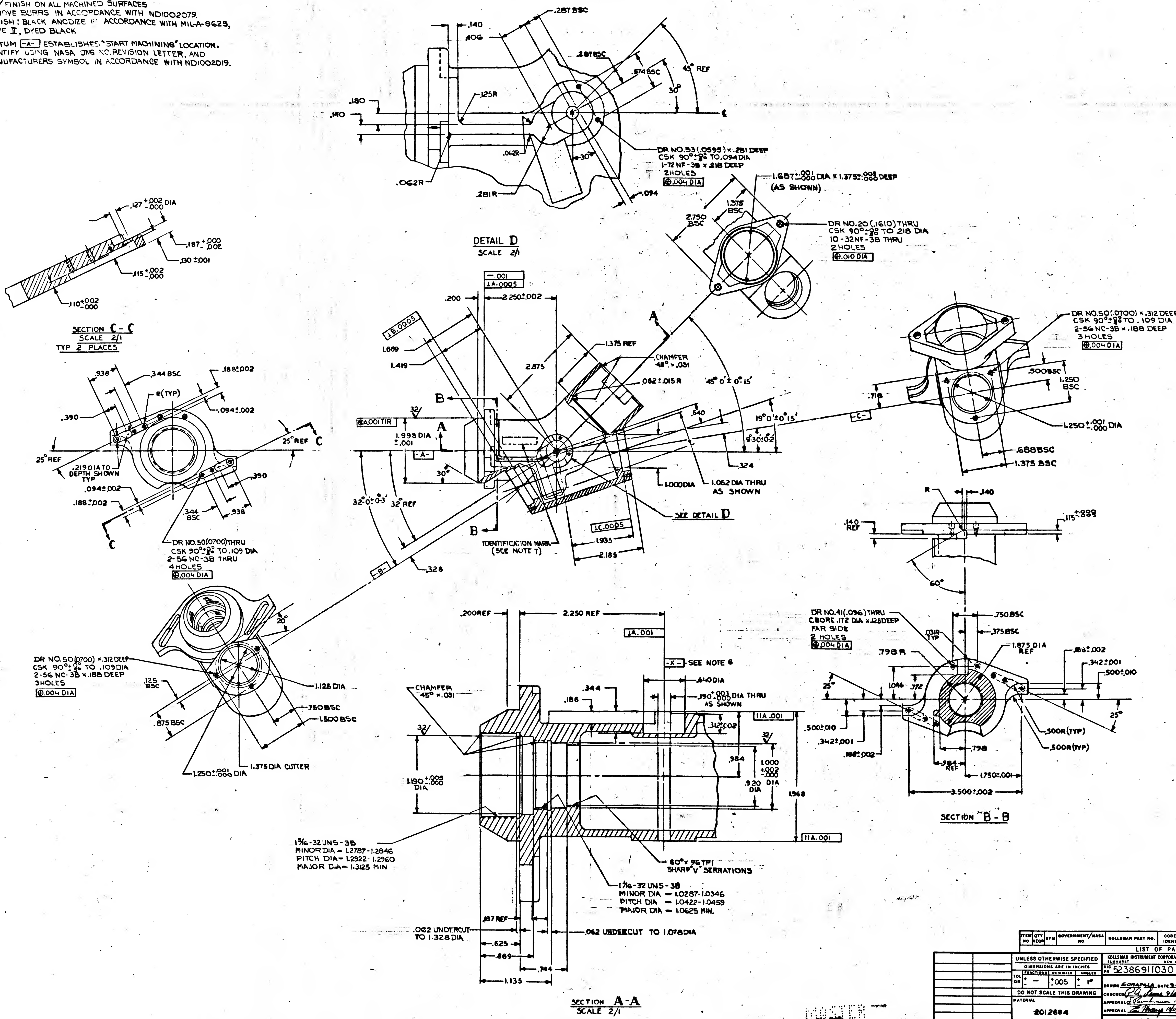
TITLE
HOUSING, MIRROR
(SEXTANT EYEPIECE)

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012685
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF

B	2012685

REVISIONS TDRR 2336[illegible]				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26297	9/23/[illegible]	[illegible]
B		REVISED PER TDRR 28359	5/4/[illegible]	[illegible]

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, DYED BLACK
6. DATUM -A- ESTABLISHES "START MACHINING" LOCATION.
7. IDENTIFY USING NASA DWG NO. REVISION LETTER, AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012695	2011000	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL ON: FRACTIONS ± —; DECIMALS ± .005; ANGLES ± 1° DO NOT SCALE THIS DRAWING	KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN 52386911030	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL 2012684	DRAWN EDRAPALA DATE 9-8-65 CHECKED P. G. Lame 9/14/65 APPROVAL E. [illegible] 11/1/[illegible] APPROVAL E. [illegible] 10/4/65	TITLE HOUSING, MIRROR (SEXTANT EYEPIECE)
APPLICATION		CONTRACT	A. C. METZGER NASA APPROVAL MIT APPROVAL	CODE IDENT NO. 80230 SIZE E NASA NUMBER 2012685 SCALE 1/1 & 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

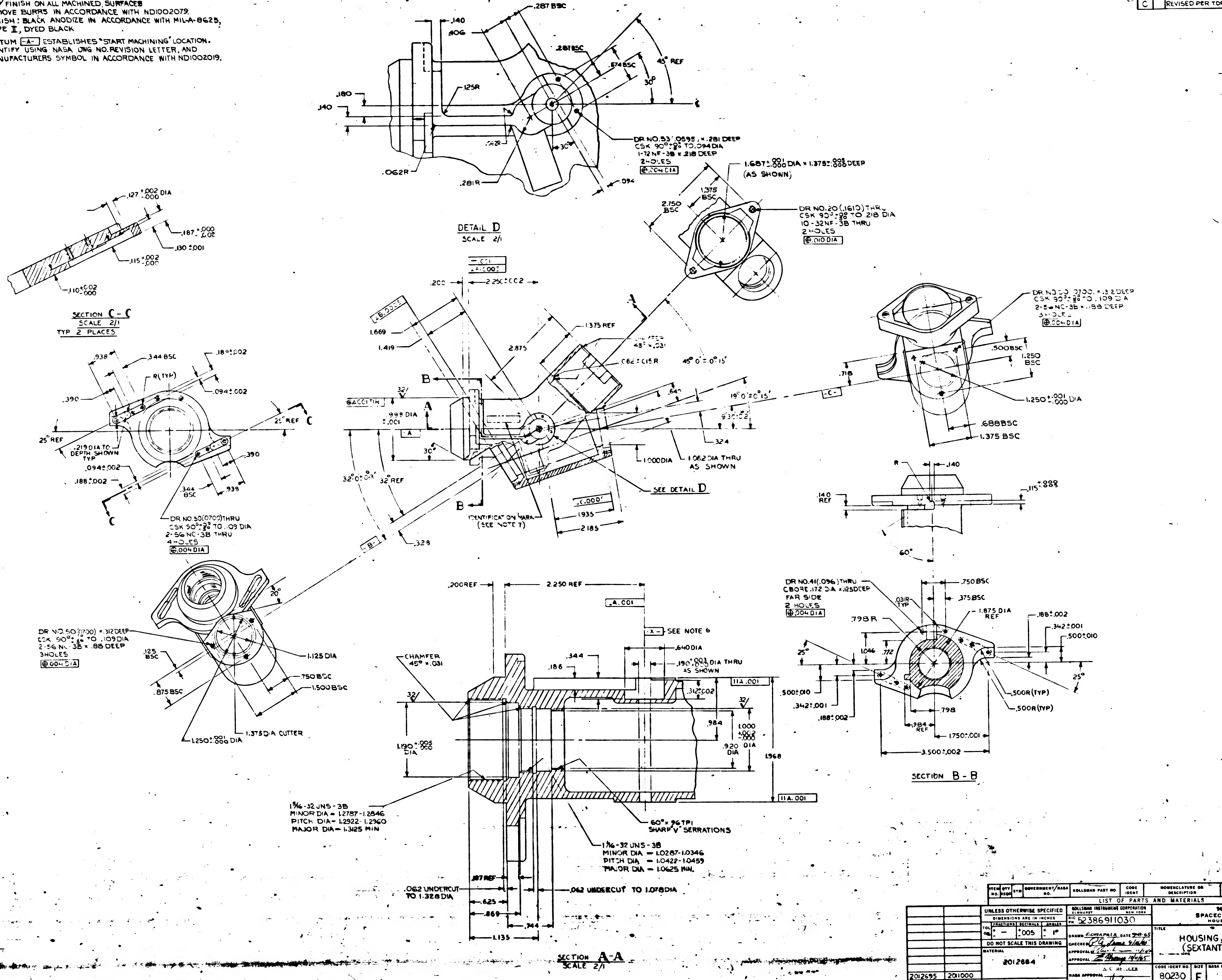
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS, IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   32 FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, DYED BLACK
6. DATUM -A- ESTABLISHES "START MACHINING" LOCATION.
7. IDENTIFY USING NASA DWG NO. REVISION LETTER, AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.

2012685 C

REVISIONS TDRR 33366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26297	2/23/66	W.K
B		REVISED PER TDRR 28359	5/-/66	W.K
C		REVISED PER TDRR 30827	9/25/66	



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012684
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911030
DRAWN E. DRAPALA DATE 9-8-65
CHECKED P.G. Lemme 9/16/65
APPROVAL 11/1/65
APPROVAL 10/4/65
A. C. MILLER
NASA APPROVAL
MIT APPROVAL W. Wolff 26 Oct

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

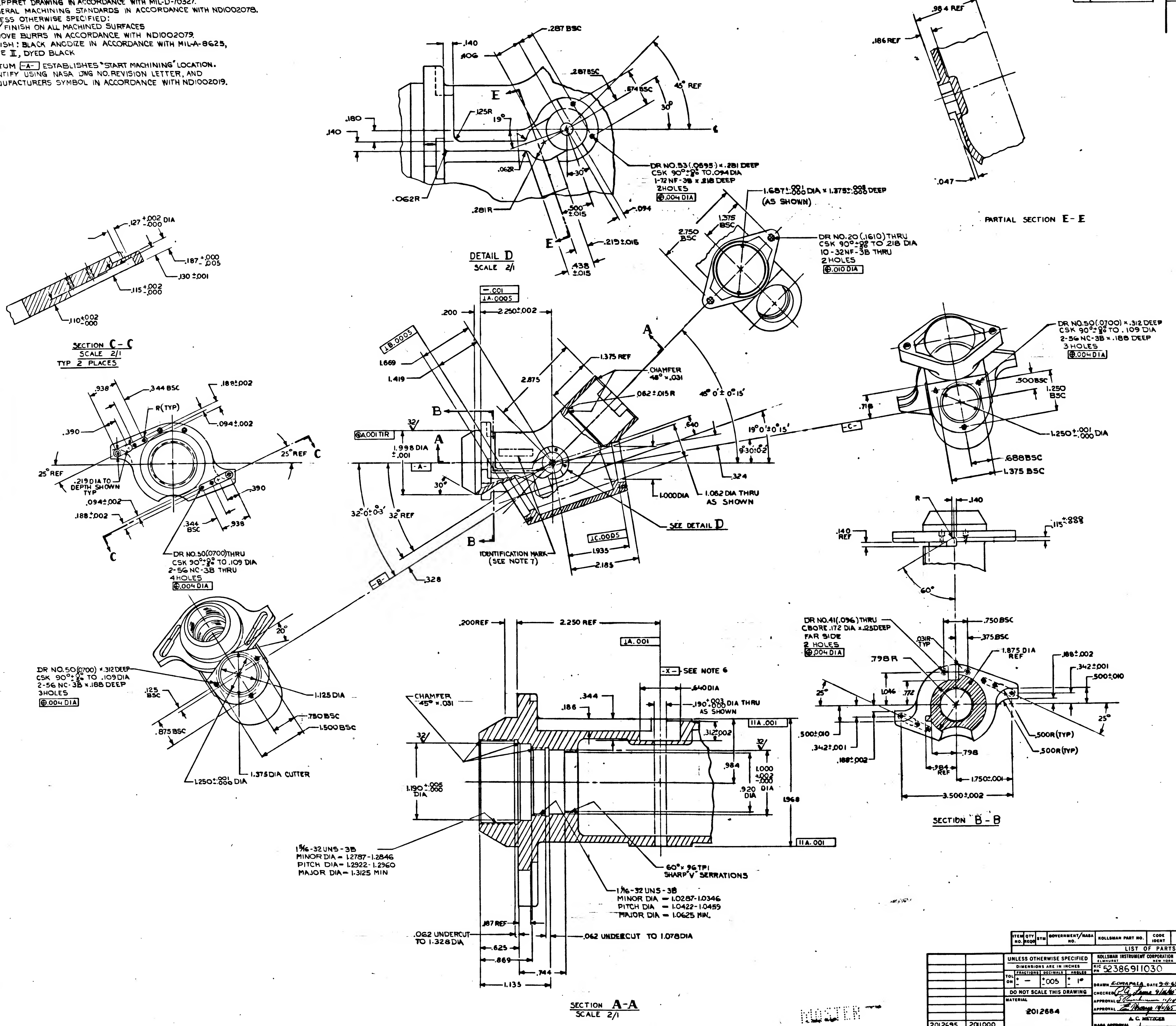
TITLE
HOUSING, MIRROR
(SEXTANT EYEPIECE)

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012685
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   32/ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE IN ACCORDANCE WITH MIL-A-8625, TYPE II, DYED BLACK
6. DATUM -A- ESTABLISHES "START MACHINING" LOCATION.
7. IDENTIFY USING NASA DWG NO. REVISION LETTER, AND MANUFACTURERS SYMBOL IN ACCORDANCE WITH ND1002019.

2012685

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL


DETAIL D
SCALE 2/1
PARTIAL SECTION E-E
SECTION C-C
SCALE 2/1
TYP 2 PLACES
SECTION A-A
SCALE 2/1
SECTION B-B
DR NO.53 (.0595) x .281 DEEP CSK 90°±2° TO .094 DIA 1-72NF-3B x .218 DEEP 2 HOLES
.004 DIA
1.687 +.001 -.000 DIA x 1.375 +.005 -.000 DEEP (AS SHOWN)
DR NO.20 (.1610) THRU CSK 90° TO .218 DIA 10-32NF-3B THRU 2 HOLES
.010 DIA
DR NO.50 (.0700) x .312 DEEP CSK 90° TO .109 DIA 2-56 NC-3B x .188 DEEP 3 HOLES
.004 DIA
DR NO.50 (.0700) THRU CSK 90° TO .109 DIA 2-56 NC-3B THRU 4 HOLES
.004 DIA
DR NO.41 (.096) THRU CBORE .172 DIA x .125 DEEP FAR SIDE 2 HOLES
.004 DIA
CHAMFER 48° x .031
CHAMFER 45° x .031
IDENTIFICATION MARK (SEE NOTE 7)
SEE DETAIL D
-X- SEE NOTE 6
1.062 DIA THRU AS SHOWN
1.000 DIA
1.998 DIA ±.001
1.250 +.001 -.000 DIA
1.375 DIA CUTTER
.190 +.003 -.000 DIA THRU AS SHOWN
1 5/16-32 UNS-3B MINOR DIA = 1.2787-1.2846 PITCH DIA = 1.2922-1.2960 MAJOR DIA = 1.3125 MIN
1 1/16-32 UNS-3B MINOR DIA = 1.0287-1.0346 PITCH DIA = 1.0422-1.0459 MAJOR DIA = 1.0625 MIN.
60° x 96 TPI SHARP 'V' SERRATIONS
.062 UNDERCUT TO 1.328 DIA
.062 UNDERCUT TO 1.078 DIA
2.250 ±.002
2.250 REF
3.500 ±.002
1.750 ±.001
19°0'±0°15'
32°0'±0°3'
45°0'±0°15'
A
B
C
D
E

		ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNI WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL 2012684
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911030
DRAWN E. DRAPALA DATE 9-8-65
CHECKED P. G. Leone 9/16/65
APPROVAL E. Rushman 11/1/65
APPROVAL E. Thomas 11/4/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL W. Kupfer

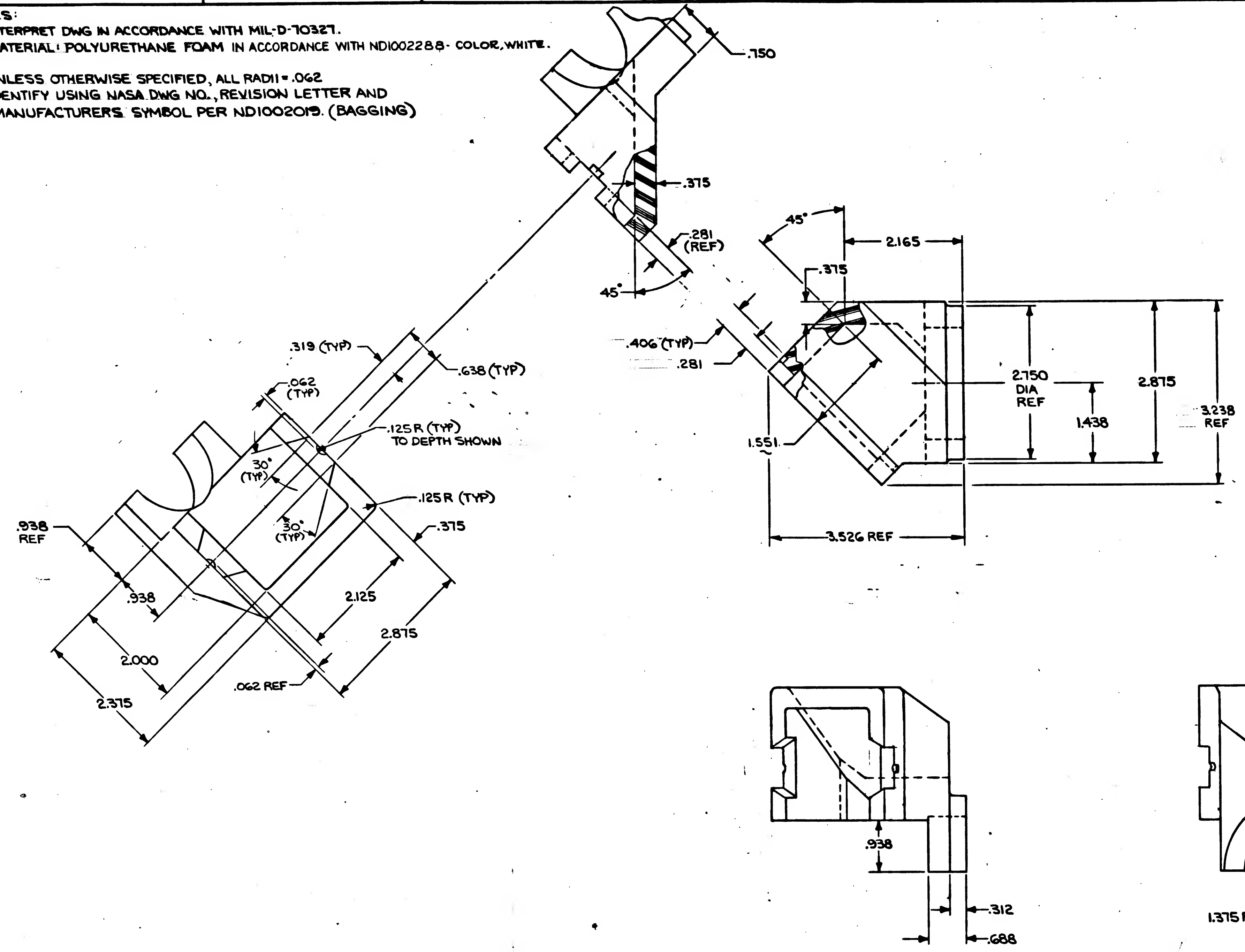
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
TITLE HOUSING, MIRROR (SEXTANT EYEPIECE)
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012685
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

9892102

REVISIONS TDEE 24350				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288 - COLOR, WHITE.

3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .062
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012667	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .030	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 26386910620

DRAWN DATE 9-15-65
CHECKED H E Prussy 9-21-65
APPROVAL 10/11/65
APPROVAL E. Thorup 10/11/65
NASA APPROVAL A.C. METZGER
MIT APPROVAL 24 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
INSULATION, THERMAL
SCT PRISM HOUSING

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012686
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

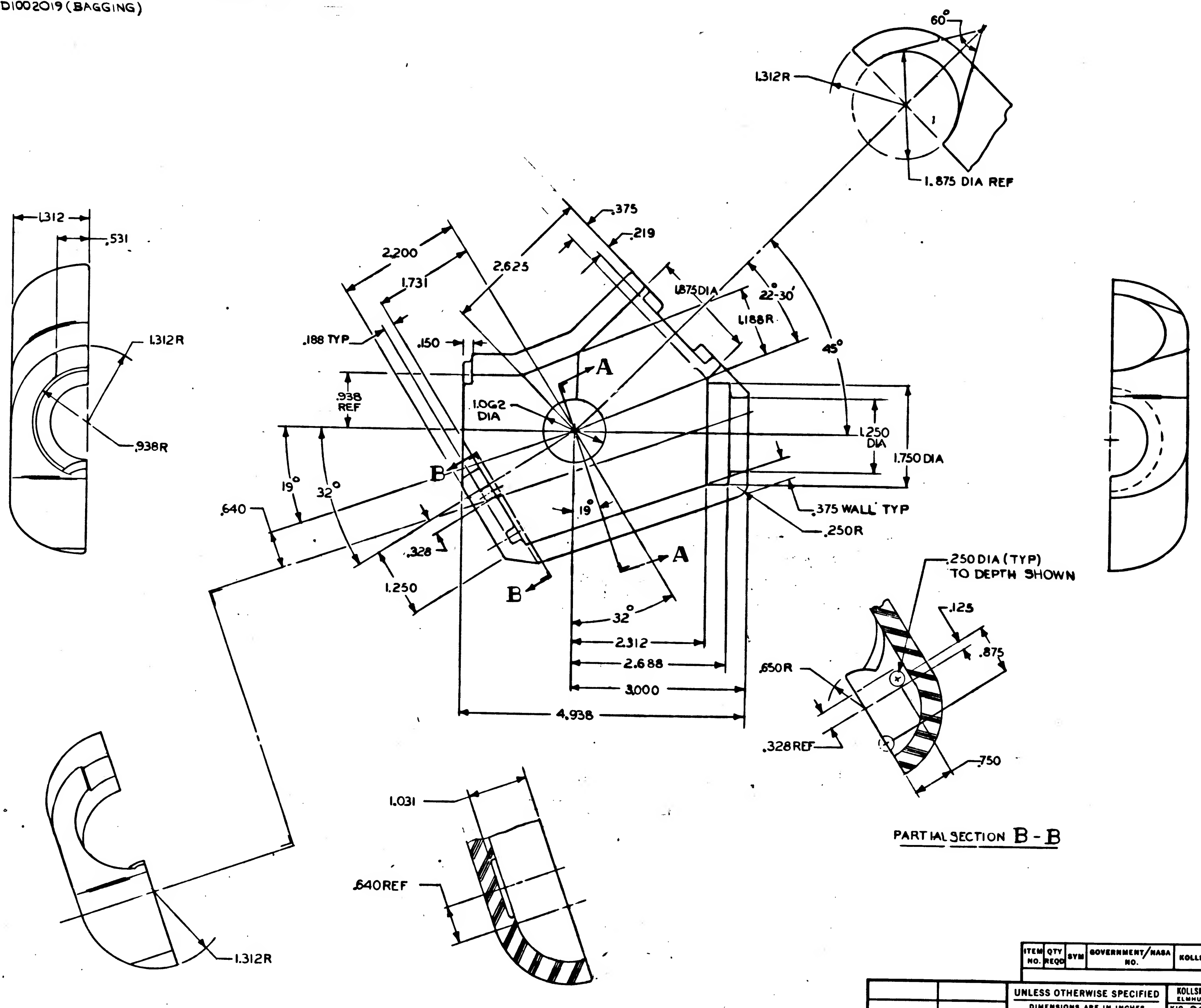
2012686

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288-COLOR, WHITE.

3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .062
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (BAGGING)

2012687

REVISIONS TDRR 24350				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



PARTIAL SECTION B-B

PARTIAL SECTION A-A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .030	± 2°

DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 26386910630
DRAWN E. GRAPALA DATE 9-13-65
CHECKED P. G. Leone 9/21/65
APPROVAL 10/13/65
APPROVAL E. Ukonys 10/15/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL 11/24/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
INSULATION THERMAL
SXT MIRROR HSG

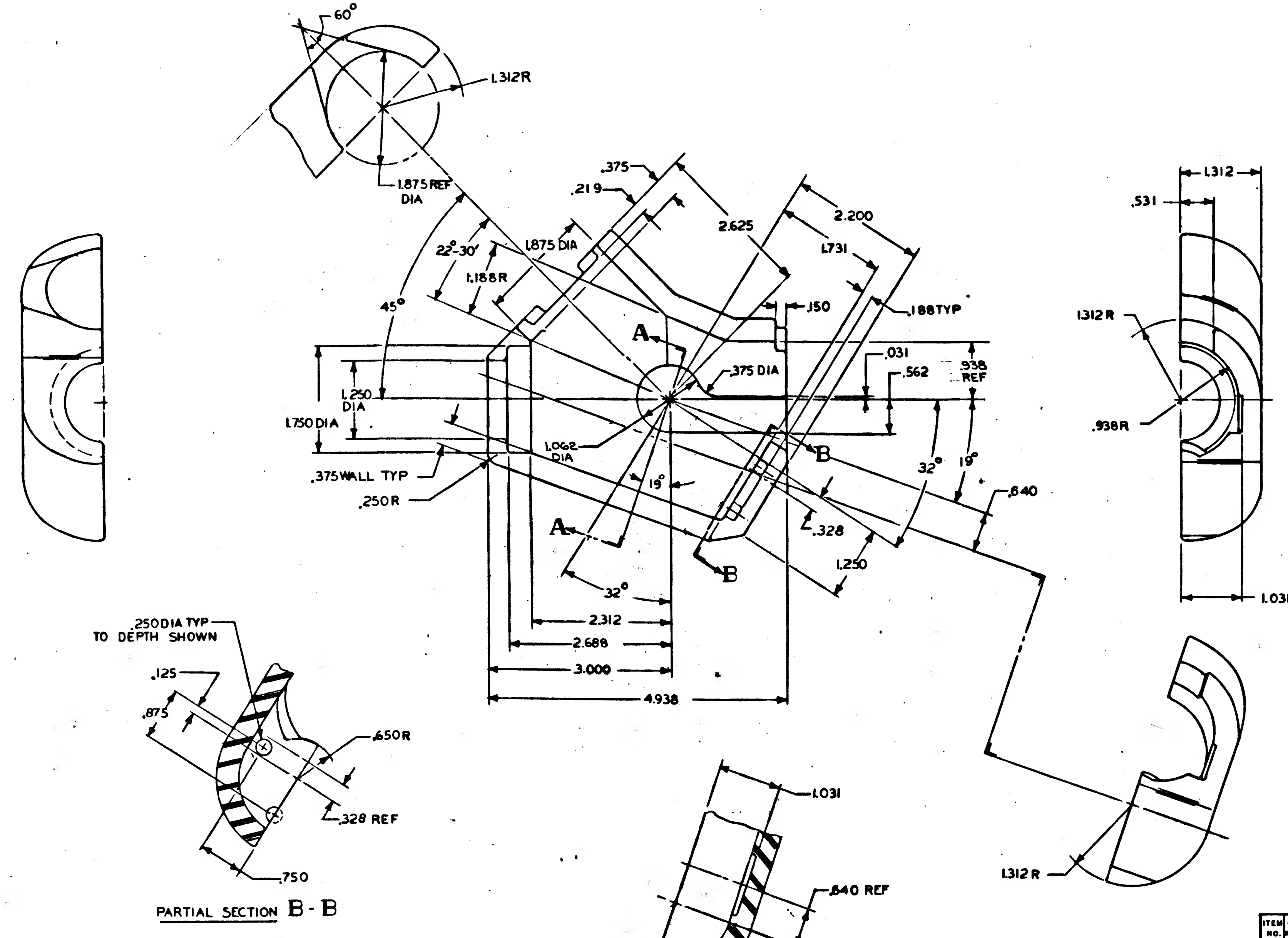
CODE IDENT NO.
SIZE D
NASA NUMBER 2012687
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012688

SYM	ZONE	REVISIONS TDRE 24350 DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288-COLOR, WHITE.

3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .062.
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (BAGGING).



PARTIAL SECTION B-B

PARTIAL SECTION A-A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012699	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.030 ; ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 26386910640
DRAWN E. GRAPALA DATE 9-14-65
CHECKED P. A. Leone 9-21-65
APPROVAL 10/14/62
APPROVAL E. Thorup 10/15/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 24 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

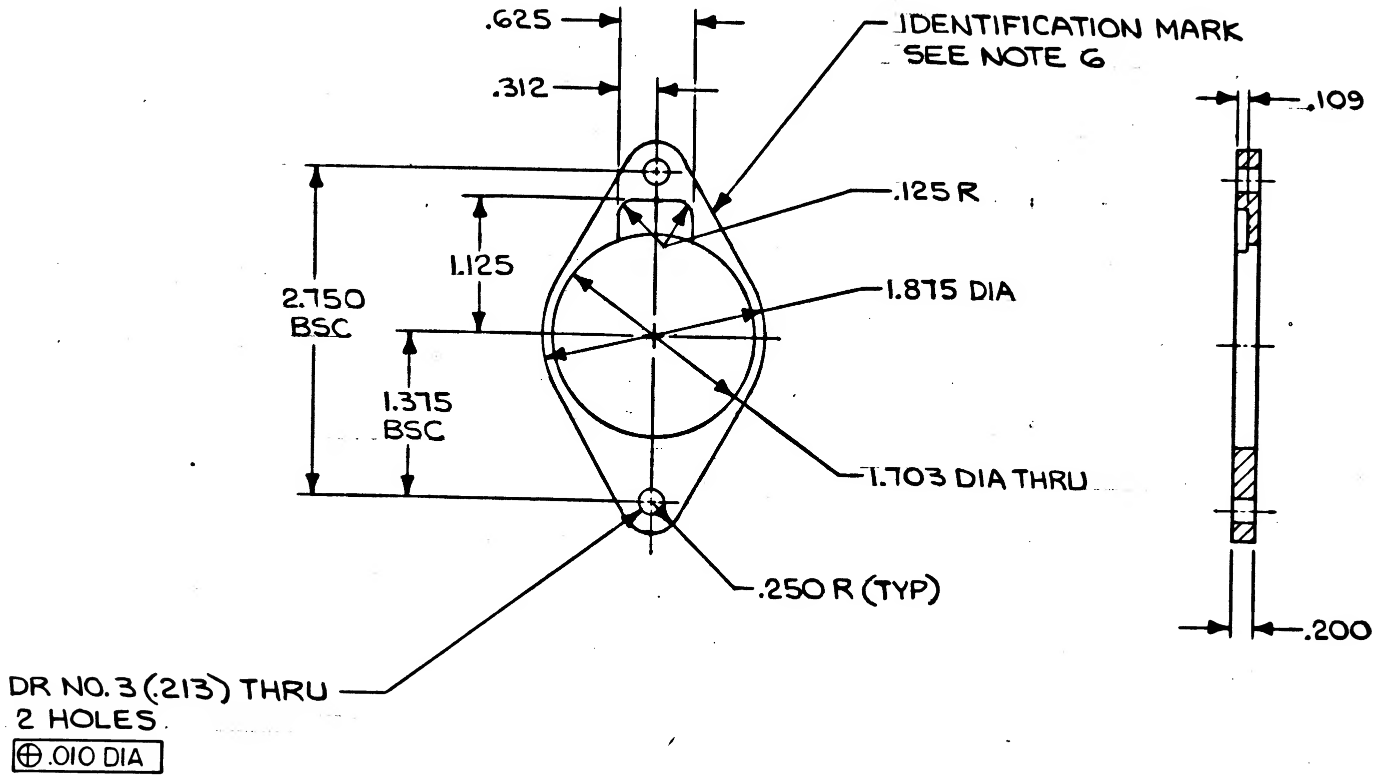
TITLE
INSULATION, THERMAL
SXT MIRROR HSG

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012688
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

2012689

SYM	ZONE	REVISIONS TORR 23366 DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63/ FINISH ALL OVER.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: BLACK ANODIZE (SULFURIC) PER MIL-A-8625 TYPE II
   DYED BLACK
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± ~

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED. SPEC QQ-A-250/4
TEMPER T3

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 45386910140

DRAWN DATE 9-17-65
CHECKED R. A. Leone 9/21/65
APPROVAL 10/11/65
APPROVAL 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPACER, AIR FOCUSING
(SXT)

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012689

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

MASTER

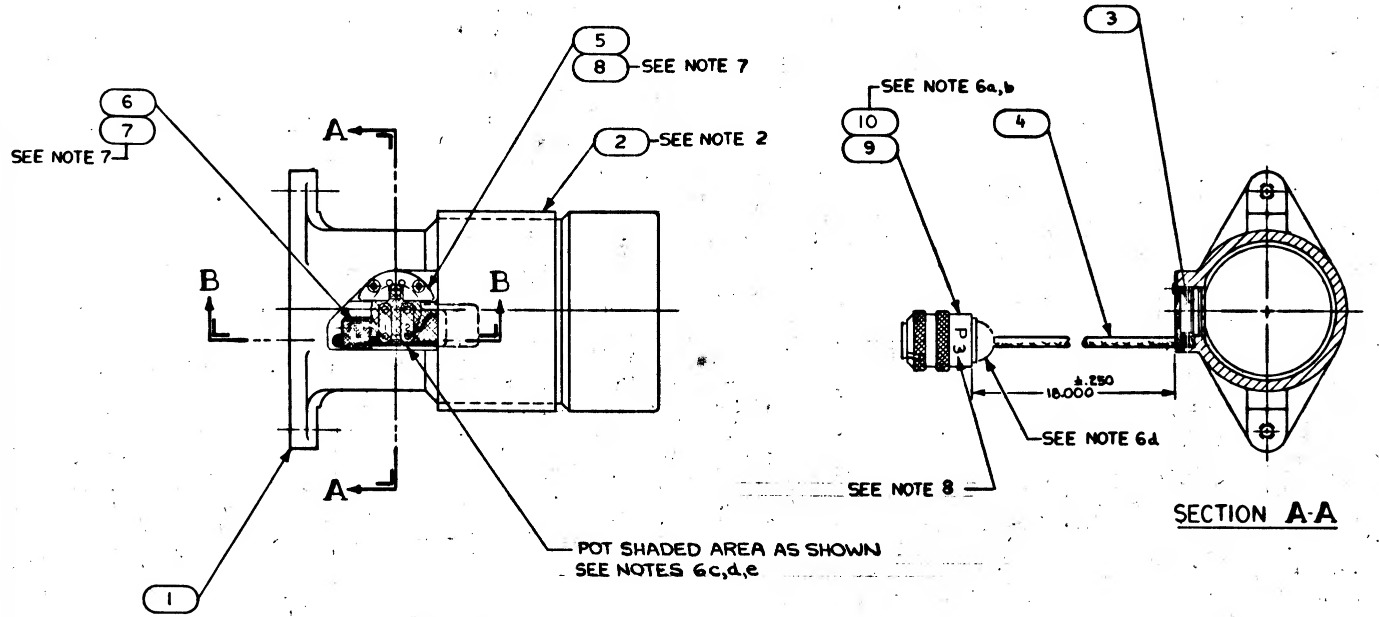
AD-1340

2012690 A

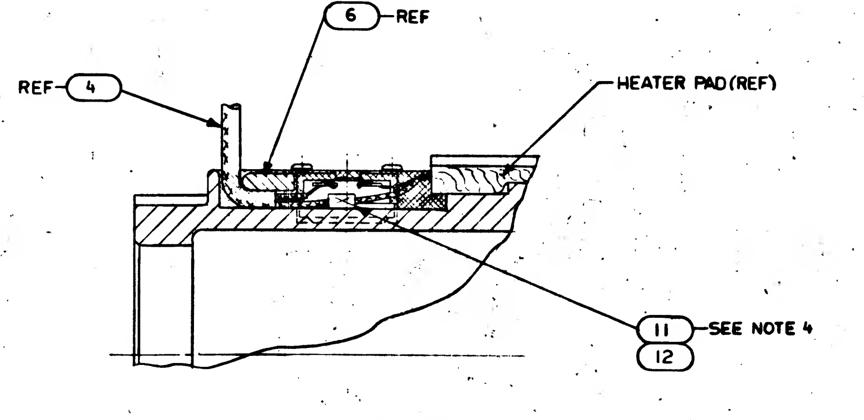
REVISIONS ~~~~ TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26296	2/23/66	WK

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. CEMENT ITEM 2 TO ITEM 1 ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
3. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
4. a) PLACE ITEM 12 OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM 11, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM 12 OVER SPLICE AND LEADS AND SHRINK.
5. PERFORM CONTINUITY CHECK.
6. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM 10, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .045.
7. VIBRATION PROOF SCREWS (ITEMS 7 & 8) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
8. MARK REFERENCE DESIGNATION .125 ± .015 HIGH IN ACCORDANCE WITH ND1002019.
9. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

WIRING LEGEND					
COLOR	ITEM NO.	FROM	INTERIM PT.	TO	REF
RED	4	P3-4	———	ITEM 3-1	SEE NOTES 6b & 3
WHITE	4	P3-7	SPLICE	ITEM 2-BLK	SEE NOTES 6b & 4
		ITEM 3-2	———	ITEM 2-RED	SEE NOTE 3



SECTION A-A



PARTIAL SECTION B-B
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	12	*	1010490-082	———		INSULATION-SLEEVING, ELECT, HEAT SHRINK.			
1	11	*	1010952-002	———		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	10	*	1010770-1	———		CONTACT, CRIMP TYPE #22 (PIN)			
1	9	*	1010929-117	———		CONNECTOR, PLUG, ELECTRICAL			
2	8	*	1006273-6	———		SCREW, CAP, BUTTON HD, HEX SOC			
1	7	*	1006273-11	———		SCREW, CAP, BUTTON HD, HEX SOC			
1	6		2012677	56386910650		PLATE, WIRE RETAINING			
1	5		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	4	*	1012551-001	———		CABLE, TEFLON, MULTICONDUCTOR, 600V (21 INCHES)			
1	3	*	1012548	———		THERMOSTAT, FIXED TEMP			
1	2	*	1012550-004	———		HEATER PAD, EYEPIECE HOUSING			
1	1		2012668	50386910170		HOUSING, LONG EYE RELIEF EYEPIECE			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012691	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911670
DRAWN F. DeChillo DATE 9-9-65
CHECKED HCBrassy 9-11-65
APPROVAL 10/18/65
APPROVAL E. Murray 10/11/65
A. G. METZGER
NASA APPROVAL
MIT APPROVAL 10/14/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
EYEPIECE HOUSING & HEATER,
ASSEMBLY OF
(SCT LONG EYE RELIEF)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012690
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012690

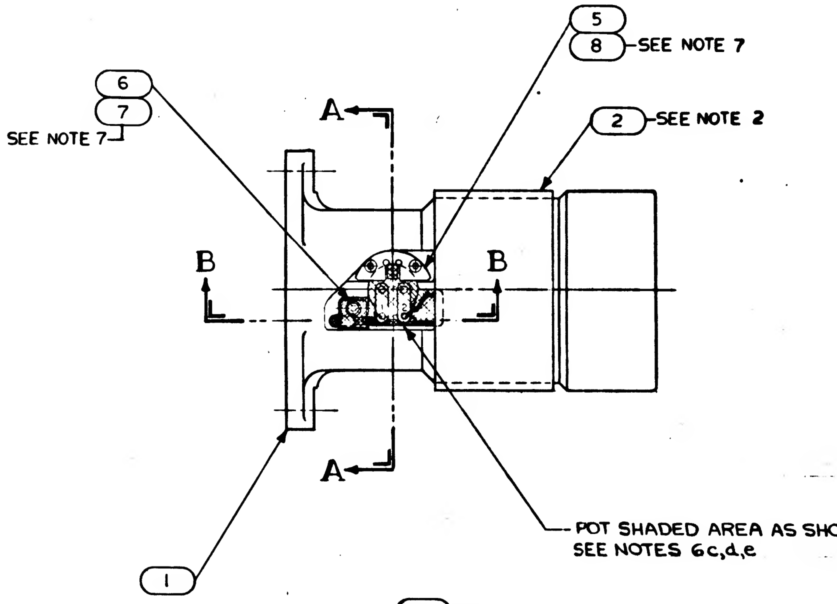
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

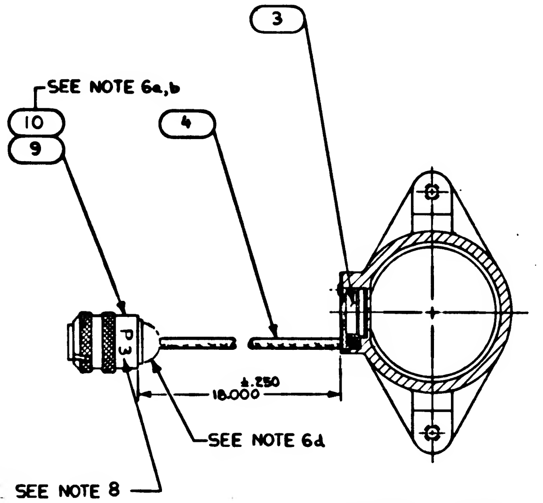
REVISIONS TDER 2336

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. CEMENT ITEM 2 TO ITEM 1 ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
3. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
4. a) PLACE ITEM 12 OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM 11, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM 12 OVER SPLICE AND LEADS AND SHRINK.
5. PERFORM CONTINUITY CHECK.
6. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM 10, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .045.
7. VIBRATION PROOF SCREWS (ITEMS 7 & 8) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
8. MARK REFERENCE DESIGNATION .125 ± .015 HIGH IN ACCORDANCE WITH ND1002019.
9. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

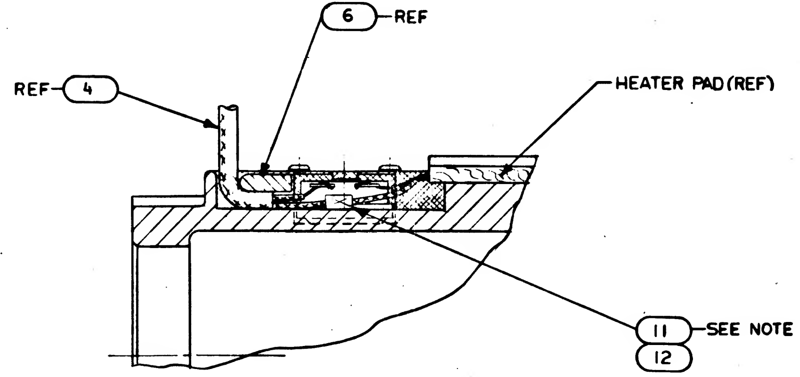
WIRING LEGEND

COLOR	ITEM NO.	FROM	INTERIM PT.	TO	REF
RED	4	P3-4	—	ITEM 3-1	SEE NOTES 6b & 3
WHITE	4	P3-7	SPLICE	ITEM 2-BLK	SEE NOTES 6b & 4
		ITEM 3-2	—	ITEM 2-RED	SEE NOTE 3





SECTION A-A



PARTIAL SECTION B-B
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	12	*	1010490-082	—		INSULATION-SLEEVING, ELECT, HEAT SHRINK.			
1	11	*	1010952-002	—		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	10	*	1010770-1	—		CONTACT, CRIMP TYPE *22 (PIN)			
1	9	*	1010929-117	—		CONNECTOR, PLUG, ELECTRICAL			
2	8	*	1006273-6	—		SCREW, CAP, BUTTON HD, HEX SOC			
1	7	*	1006273-11	—		SCREW, CAP, BUTTON HD, HEX SOC			
1	6		2012677	56386910650		PLATE, WIRE RETAINING			
1	5		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	4	*	1012551-001	—		CABLE, TEFLON, MULTICONDUCTOR, 600V (21 INCHES)			
1	3	*	1012548	—		THERMOSTAT, FIXED TEMP			
1	2	*	1012550-004	—		HEATER PAD, EYEPIECE HOUSING			
1	1		2012668	50386910170		HOUSING, LONG EYE RELIEF EYEPIECE			

000

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012691	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911670
DRAWN DATE 9-9-65
CHECKED 9-11-65
APPROVAL 10/1/65
APPROVAL E. Morez 10/11/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
EYEPIECE HOUSING & HEATER,
ASSEMBLY OF
(SCT LONG EYE RELIEF)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012690
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

E-188

2012690

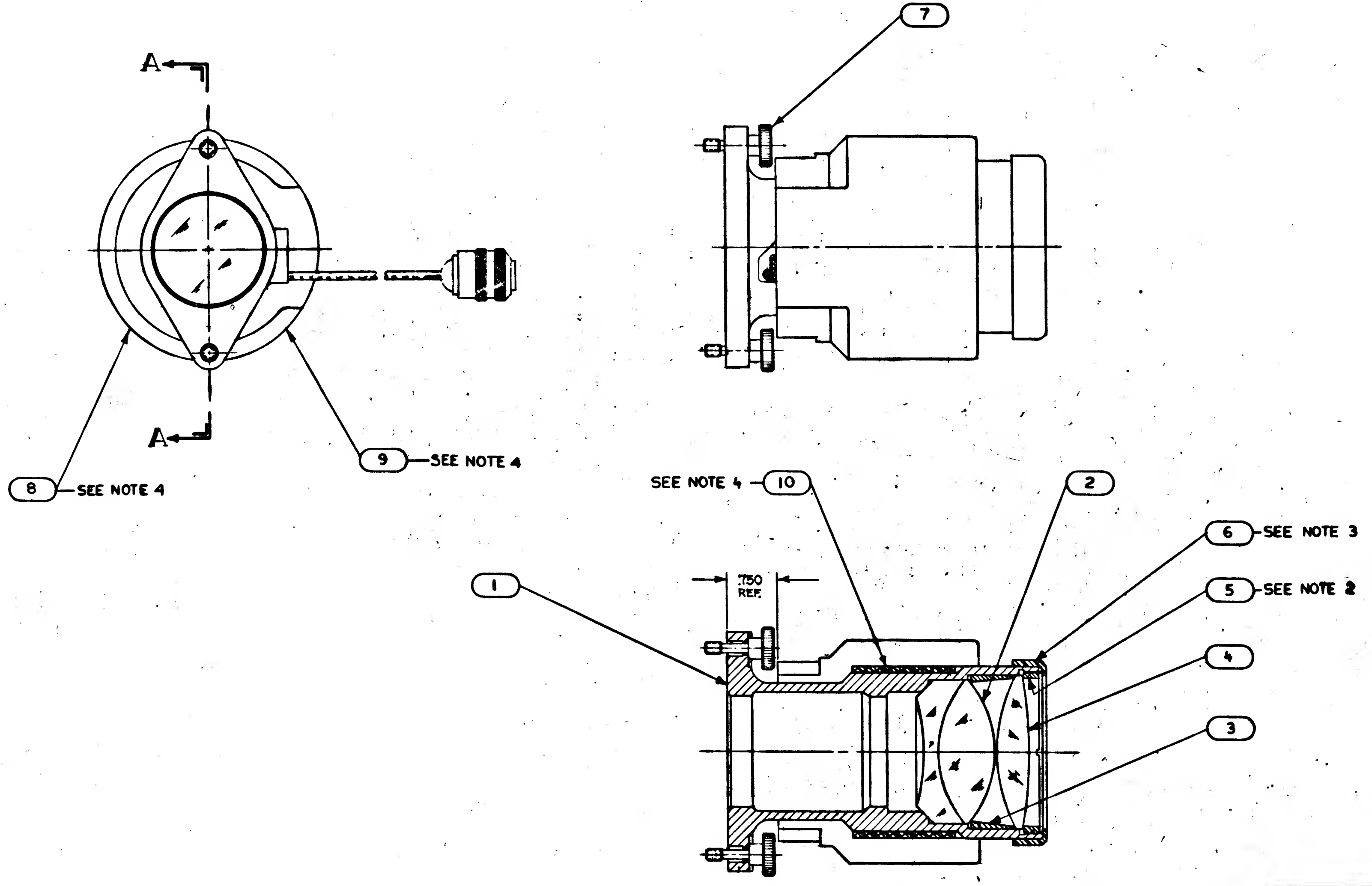
A 2012691

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26295	2/23/66	WH

REVISIONS TDRR 23366

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO 1/3 CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473 GRADE H.V. PER ND1002211.
3. CEMENT IN PLACE IN ACCORDANCE WITH MIL-A-1154.
4. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 8&9) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSEMBLY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 8 & 9) WITH ADHESIVE (ITEM 10) AND ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
5. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)



SECTION A-A

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	10	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
1	9		2012683	26386910610		INSULATION, THERMAL			
1	8		2012682	26386910600		INSULATION, THERMAL			
2	7		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	6		2011974	26386910050		GUARD, RUBBER			
1	5		2011916	57386910820		RING, LOCKING			
1	4		2011824	28386910350		LENS, POSITIVE			
1	3		2011917	57386910820		SPACER, LENS			
1	2		2011730	76386910100		LENS, ASSY OF			
1	1		2012690	85386911670		EYEPIECE HOUSING & HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911680

DRAWN J. Waldon DATE 9-13-65
CHECKED H E Prussy 9-21-65
APPROVAL 10/1/65
APPROVAL 10/18/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

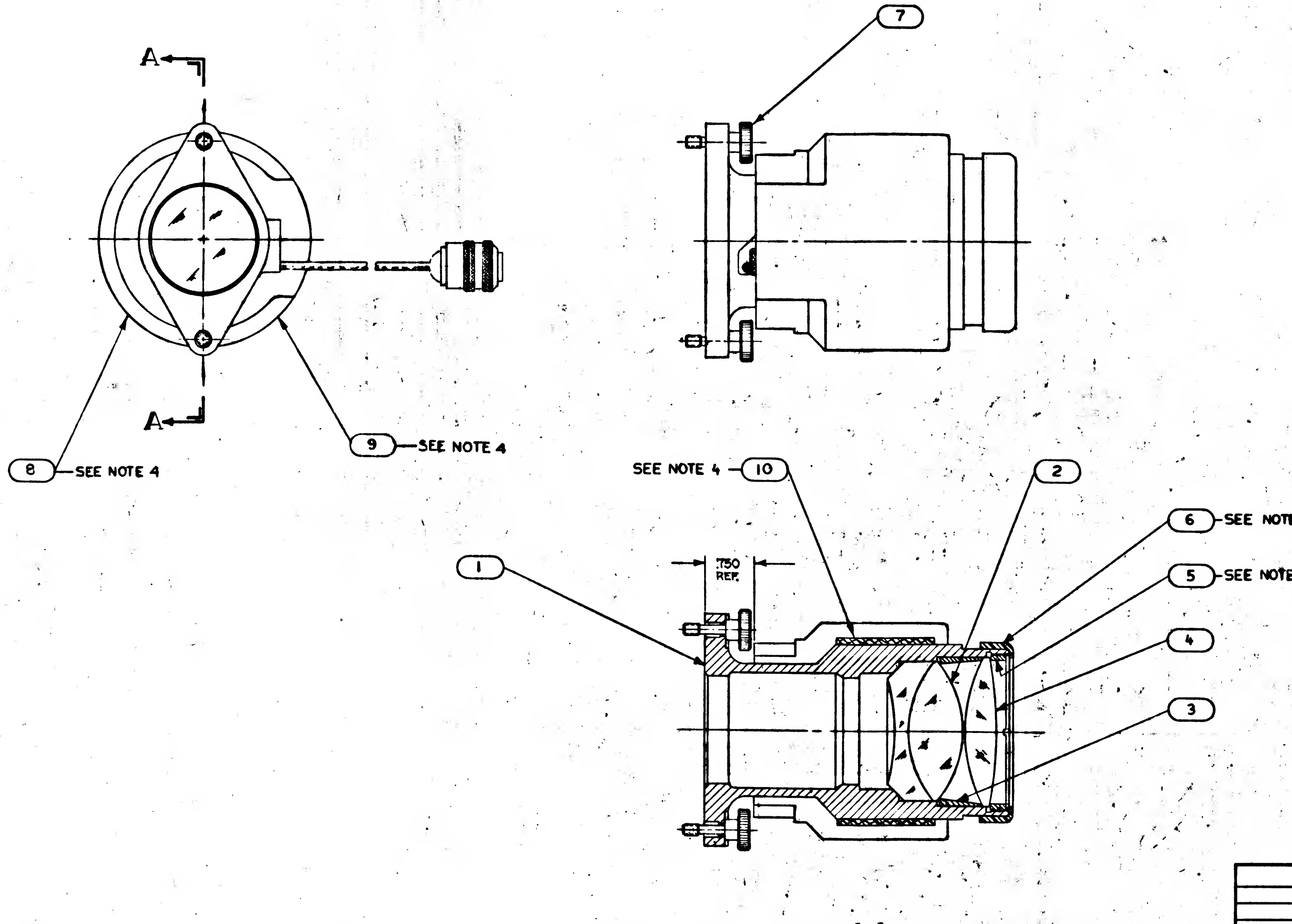
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012691
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

B 2012691

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO 1/3 CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473 GRADE H.V. PER ND1002211.
3. CEMENT IN PLACE IN ACCORDANCE WITH MIL-A-1154.
4. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 8 & 9) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSEMBLY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 8 & 9) WITH ADHESIVE (ITEM 10) AND ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
5. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

REVISIONS TDRR 233..

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26295	[illegible]	[illegible]
B		REVISED PER TDRR 28213	[illegible]	[illegible]



SECTION A-A

MASTER

* PURCHASE ITEM : SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	10	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
1	9		2012715	—		INSULATION, THERMAL			
1	8		2012714	—		INSULATION, THERMAL			
2	7		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	6		2011974	26386910050		GUARD, RUBBER			
1	5		2011916	57386910820		RING, LOCKING			
1	4		2011824	28386910350		LENS, POSITIVE			
1	3		2011917	57386910820		SPACER, LENS			
1	2		2011730	76386910100		LENS, ASSY OF			
1	1		2012690	85386911670		EYEPIECE HOUSING & HEATER, ASSY OF			

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911680
DRAWN [illegible] DATE 9-13-65
CHECKED H E Pressey 9-21-65
APPROVAL [illegible] 10/18/65
APPROVAL [illegible] 10/18/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012691
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

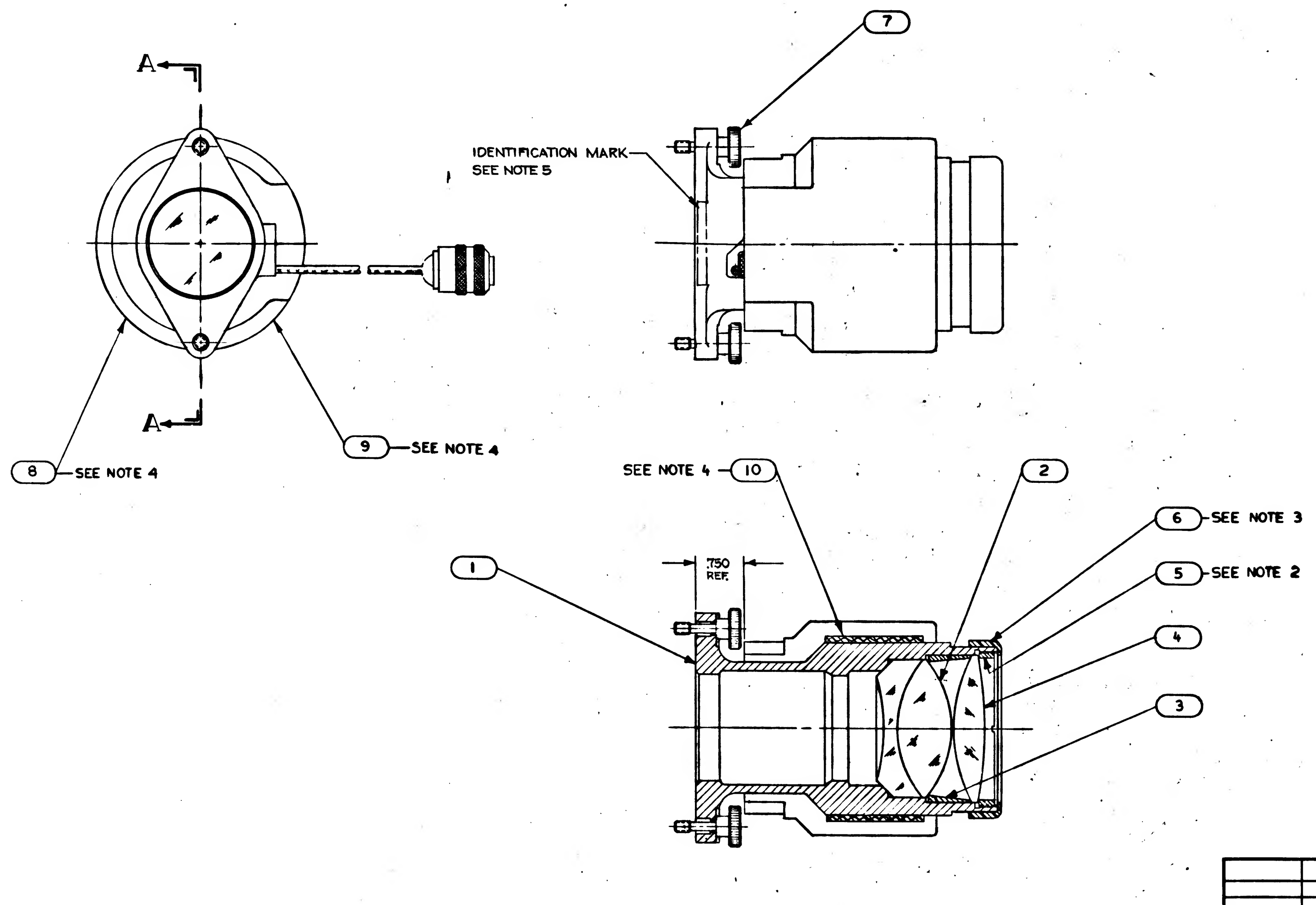
E-188

2012691 C

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		REVISIONS TDRR 23366		
A		REVISED PER TDRR 26295	[illegible]	
B		REVISED PER TDRR 28213	5/4/66	
C		REVISED PER TDRR 29295	6-7-66	

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO 1/3 CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473 GRADE H.V. PER ND1002211.
3. CEMENT IN PLACE IN ACCORDANCE WITH MIL-A-1154.
4. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 8 & 9) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSEMBLY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 8 & 9) WITH ADHESIVE (ITEM 10) AND ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
5. IDENTIFY USING NASA PART NO. & SERIAL NO. AND MANUFACTURER'S SYMBOL PER ND1002019.
6. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2012691.



SECTION A-A

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	10	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
1	9		2012715	—		INSULATION, THERMAL			
1	8		2012714	—		INSULATION, THERMAL			
2	7		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	6		2011974	26386910050		GUARD, RUBBER			
1	5		2011916	57386910820		RING, LOCKING			
1	4		2011824	28386910350		LENS, POSITIVE			
1	3		2011917	57386910820		SPACER, LENS			
1	2		2011730	76386910100		LENS, ASSY OF			
1	1		2012690	85386911670		EYEPIECE HOUSING & HEATER, ASSY OF			
000									

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM : SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911680

DRAWN DATE 9-13-65
CHECKED H E Prussy 9-21-65
APPROVAL 10/8/65
APPROVAL 10/18/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

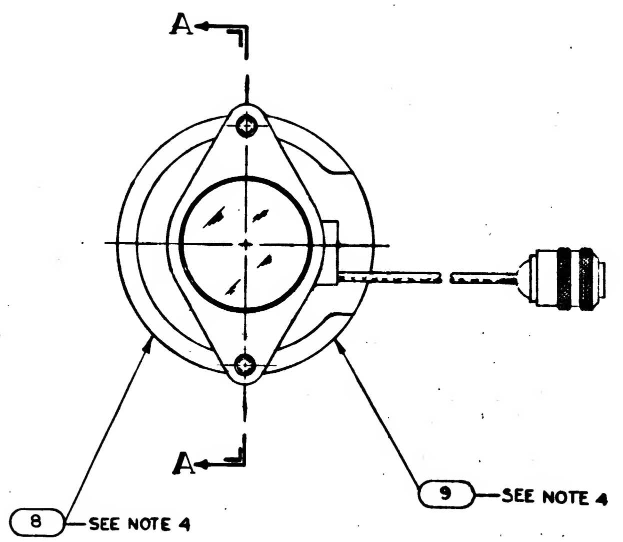
TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

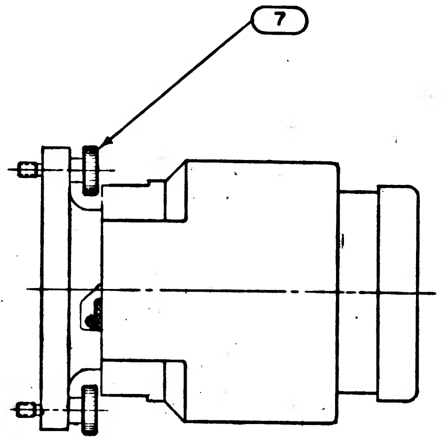
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012691
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

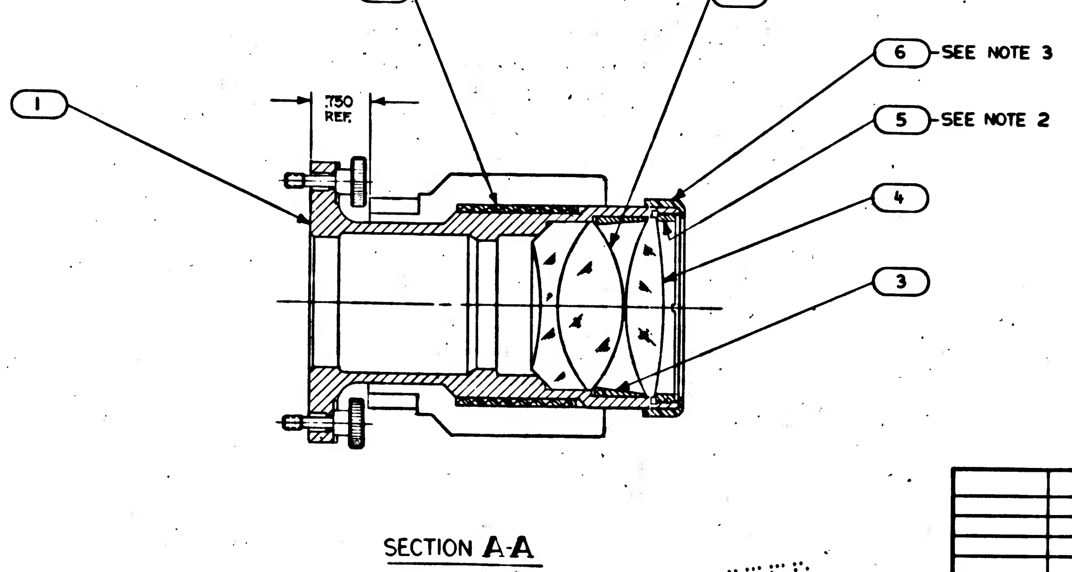
2012691

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO 1/3 CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473 GRADE H.V. PER ND1002211.
3. CEMENT IN PLACE IN ACCORDANCE WITH MIL-A-1154.
4. COAT MATING SURFACES AND INTERIOR SURFACES OF BOTH INSULATIONS (ITEM 8 & 9) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSY (ITEM 1) WITH ADHESIVE (ITEM 10) BEFORE ASSEMBLY; ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
5. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)







SECTION A-A

MASTER

AR	10	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
1	9		2012683	26386910610		INSULATION, THERMAL			
1	8		2012682	26386910600		INSULATION, THERMAL			
2	7		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	6		2011974	26386910050		GUARD, RUBBER			
1	5		2011916	57386910820		RING, LOCKING			
1	4		2011824	28386910350		LENS, POSITIVE			
1	3		2011917	57386910820		SPACER, LENS			
1	2		2011730	76386910100		LENS, ASSY OF			
1	1		2012690	85386911670		EYEPIECE HOUSING & HEATER, ASSY OF			
000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
QTY REQD	LIST OF PARTS AND MATERIALS								

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911680
DRAWN J. Dillon DATE 9-13-65
CHECKED H E Pressey 9-21-65
APPROVAL 10/18/65
APPROVAL 10/18/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012691
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

APOLLO G&N Specification
PS 2012691
Original Issue Date:
Release Authority: TDRR 29285
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LONG EYE RELIEF EYEPIECE ASSEMBLY (SCT)

DRAWING NO. 2012691

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 6 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	R. Saltzman 5/26/66 EAT 5/31/66 J. J. Sirocco 6-1-66 McMurty 6-1-66 MIT/IL	A. J. Frall KIC 5-26-66

3.1.3.2.1 LOS resolution shall be 83 arc seconds or better using a high contrast target. LOS resolution shall be 146 arc seconds using a low contrast target.

3.1.3.3 Luminous Transmittance. The measured transmission for LOS of a certified system consisting of an Optical Unit Assembly (PN 2011000) and SCT Prism Housing Assembly (PN 2012667) with a mounted certified Long Eye Relief Eyepiece (PN 2012691) shall be accomplished using a CIE standard illuminant "C". With the certified Long Eye Relief Eyepiece (PN 2012691) replaced by the Long Eye Relief Eyepiece (PN 2012691) to be tested, the measured transmission shall be within 10% of the readings taken for the certified system. Transmission shall not be less than 30% for LOS when checked against a CIE standard illuminant "C".

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2012691 and all drawings and engineering data referenced thereon.

4 QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The Contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein.

4.1.1 Nonconformance. The failure on an end product to pass any examination or test of this section will automatically classify the unit as nonconforming. When nonconforming units are corrected by the Contractor, the unit shall be reinspected. When corrective action has been taken, the reinspection of a nonconforming unit may be limited to the test or examination which defined the nonconformance or, when so directed by the cognizant inspector, a complete reexamination and retest of the unit may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the Contractor to the cognizant NASA representative.

4.1.2 Test Conditions

4.1.2.1 Environmental. Unless otherwise specified the assemblies shall be tested under the following ambient conditions.

Temperature: 25 ± 10°C

Relative Humidity: 90% maximum

Barometric Pressure: 28 to 32 inches Hg

4.2 TESTS/VERIFICATIONS.

4.2.1 Drawing Compliance. The assembly shall be visually inspected for compliance to the requirements of APOLLO G&N Drawing 2012691. Particular attention should be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of markings.

2012692

REVISIONS TORR 23366

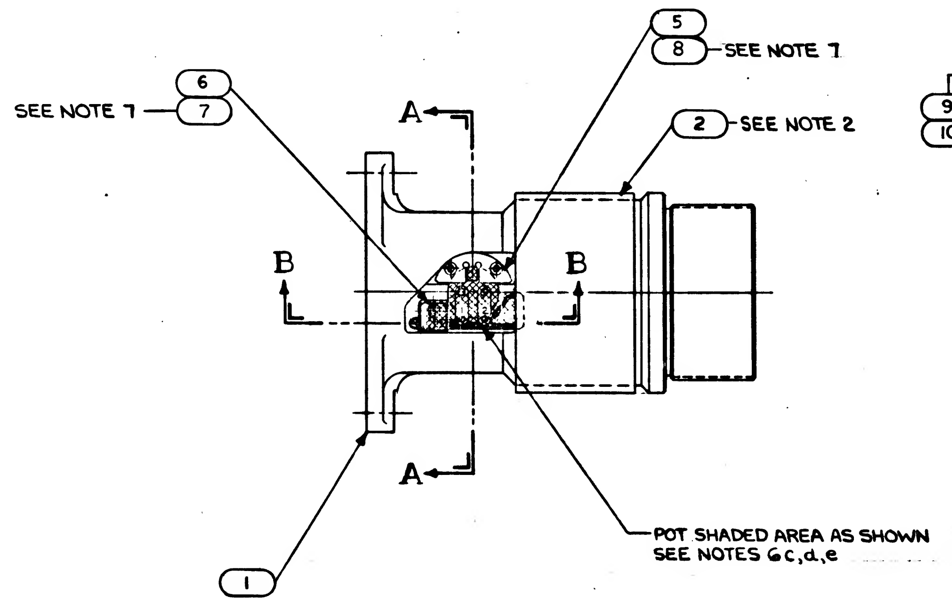
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

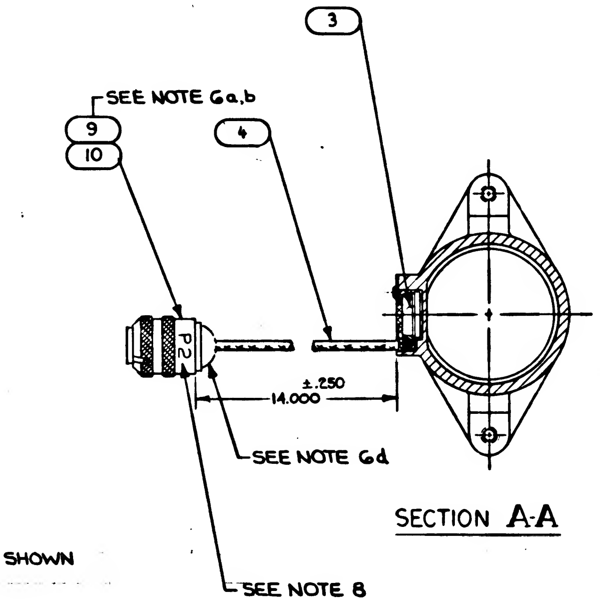
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. CEMENT ITEM 2 TO ITEM 1 ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
3. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
4. a) PLACE ITEM 12 OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM 11, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM 12 OVER SPLICE AND LEADS AND SHRINK.
5. PERFORM CONTINUITY CHECK.
6. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM 10, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER THERMOSTAT FOR A MINIMUM OF .045.
7. VIBRATION PROOF SCREWS (ITEMS 7 & 8) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
8. MARK REFERENCE DESIGNATION .125 ±.015 HIGH IN ACCORDANCE WITH ND1002019.
9. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

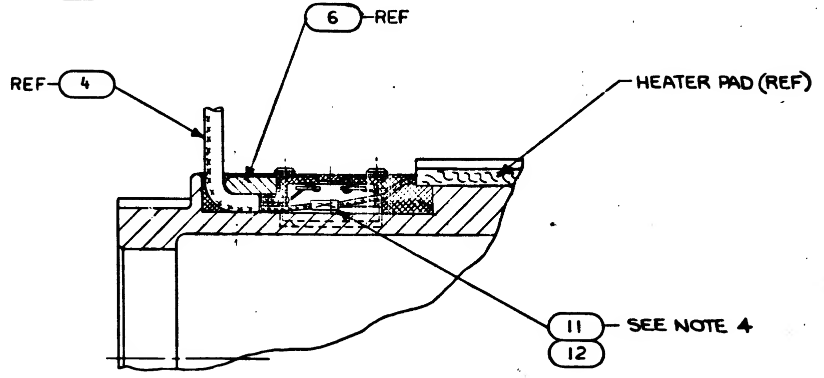
WIRING LEGEND

COLOR	ITEM NO.	FROM	INTERIM PT.	TO	REF
RED	4	P2-4	—	ITEM 3-1	SEE NOTES 6b & 3
WHITE	4	P2 7	SPLICE	ITEM 2-BLK	SEE NOTES 6b & 4
		ITEM 3-2	—	ITEM 2-RED	SEE NOTE 3





SECTION A-A



PARTIAL SECTION B-B
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	12	*	1010490-082	—		INSULATION-SLEEVING, ELECT. HEAT SHRINKABLE			
1	11	*	1010952-002	—		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	10	*	1010770-1	—		CONTACT, CRIMP TYPE, #22 (PIN)			
1	9	*	1010929-117	—		CONNECTOR, PLUG, ELECTRICAL			
2	8	*	1006273-6	—		SCREW, CAP, BUTTON HD, HEX SOC			
1	7	*	1006273-11	—		SCREW, CAP, BUTTON HD, HEX SOC			
1	6		2012677	56386910650		PLATE, WIRE RETAINING			
1	5		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	4	*	1012551-001	—		CABLE, TEFLON, MULTICONDUCTOR, 600V (17 INCHES)			
1	3	*	1012548	—		THERMOSTAT, FIXED TEMP			
1	2	*	1012550-004	—		HEATER PAD, EYEPIECE HOUSING			
1	1		2012669	50386910180		HOUSING, EYEPIECE, SCT			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012693	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —; DECIMALS ± —; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911690
DRAWN [illegible] DATE 9-16-65
CHECKED H.E. Preney 9-11-65
APPROVAL [illegible] 10/4/65
APPROVAL [illegible] 10/11/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL [illegible] 10/26/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
EYEPIECE HOUSING & HEATER,
ASSEMBLY OF
(SCT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012692
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

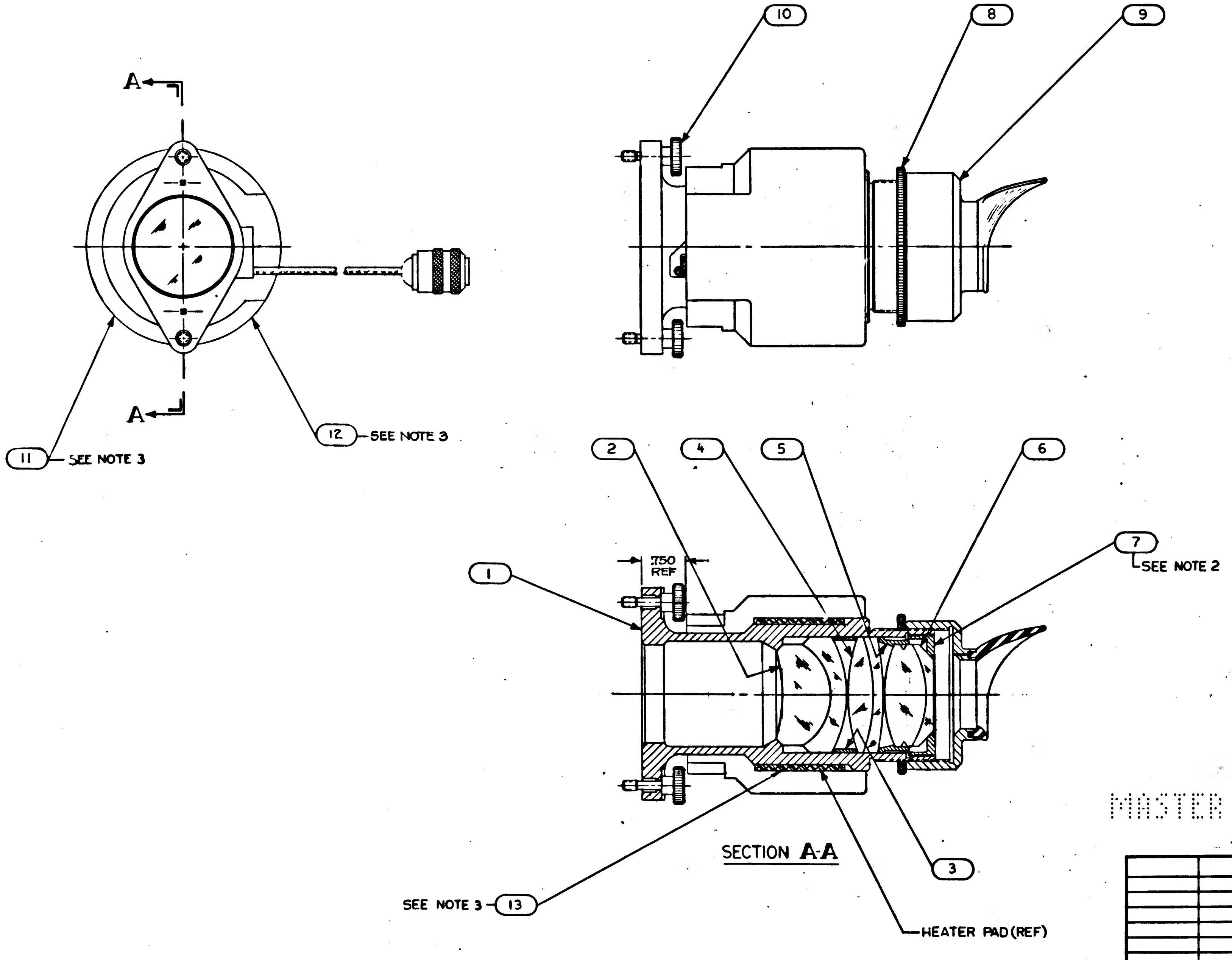
E-190

10/12/

2012693

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO ⅓ CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473 GRADE H.V. PER ND1002211.
3. COAT MATING SURFACES AND INTERIOR SURFACES OF BOTH INSULATION (ITEM 11 & 12) AS WELL AS MATCHING CONTACT AREA OF EYEPIECE ASSY (ITEM 1) WITH ADHESIVE (ITEM 13) BEFORE ASSEMBLY, ALLOW TO DRY TO A HIGH TACK BEFORE JOINING
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)



SECTION A-A

MASTER

AR	13	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
1	12		2012683	26386910610		INSULATION, THERMAL			
1	11		2012682	26386910600		INSULATION, THERMAL			
2	10		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	9		2011965	85386910550		SCT EYEGUARD ASSY			
1	8		2011962	57386910740		RING, LOCKING			
1	7		2011963	57386910730		RING, LOCKING			
1	6		2011967	76386910080		LENS, ASSY OF			
1	5		2011661	57386910270		SPACER, LENS			
1	4		2011708	76386910020		LENS, ASSY OF			
1	3		2011660	57386910260		SPACER, LENS			
1	2		2011707	76386910010		LENS, ASSY OF			
1	1		2012692	85386911690		EYEPIECE HOUSING AND HEATER, ASSY OF			
000 QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± ~	± ~

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MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911700
DRAWN DATE 9-15-65
CHECKED H E Pruey 9-21-65
APPROVAL 10/18/65
APPROVAL 10/18/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT EYEPIECE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012693
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

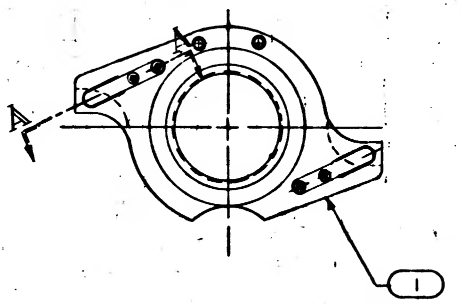
10/18/65

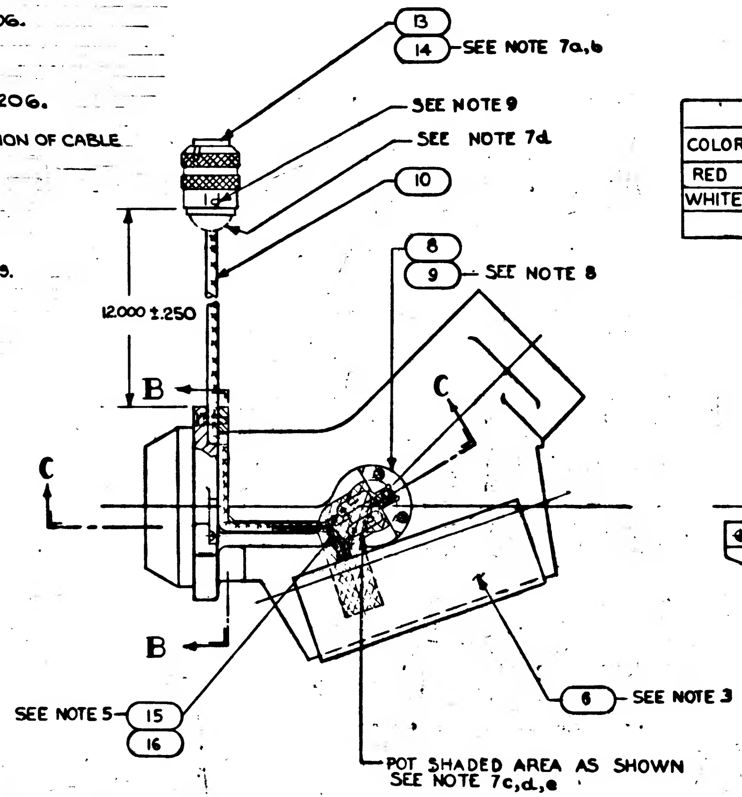
2012695 A

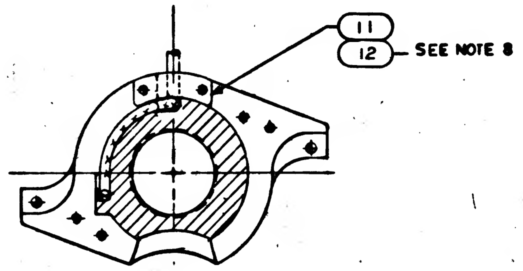
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS				
A		REVISED PER TDRR 26293	[illegible]	[illegible]

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. ITEM ⑤ TO BE INSTALLED (SWAGED) PRIOR TO ASSEMBLY OF OTHER ITEMS.
3. CEMENT ITEM ⑥ TO ITEM ① ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
4. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
5. a) PLACE ITEM ⑯ OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM ⑮, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM ⑯ OVER SPLICE AND LEADS AND SHRINK.
6. PERFORM CONTINUITY CHECK.
7. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM ⑭, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER THERMOSTAT FOR A MINIMUM OF .045.
8. VIBRATION PROOF SCREWS (ITEM ⑨ AND ⑫) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
9. MARK REFERENCE DESIGNATION .125 ±.015 HIGH IN ACCORDANCE WITH ND1002019.
10. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

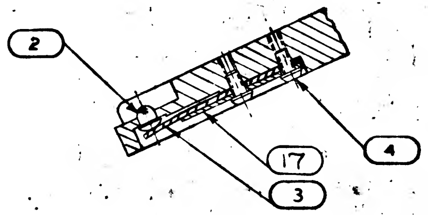
WIRING LEGEND					
COLOR	ITEM NO.	FROM	INTERIM PT	TO	REF
RED	10	P1-4	——	ITEM 7-1	SEE NOTES 7b & 4
WHITE	10	P1-7	SPLICE	ITEM 6-BLK	SEE NOTES 7b & 5
		ITEM 7-2	——	ITEM 6-RED	SEE NOTE 4



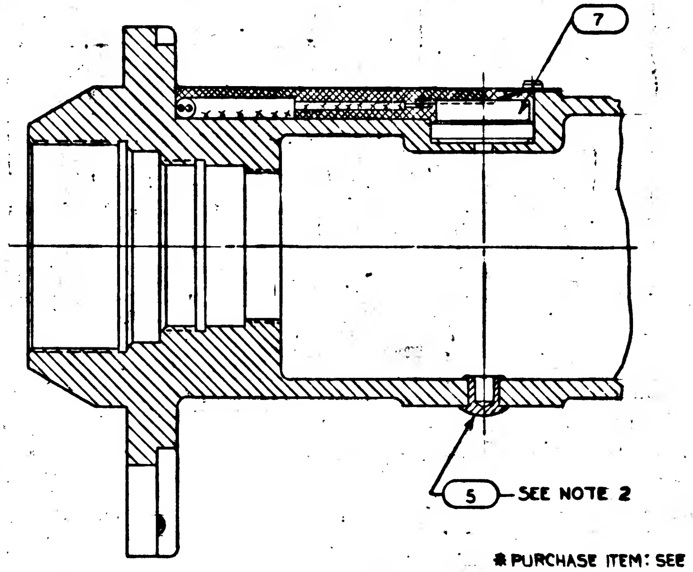




SECTION B-B



SECTION A-A
SCALE 2/1



SECTION C-C
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	17		2012745	56386910680		SPRING, FLAT			
1	16	*	1010490-060	——		INSULATION-SLEEVING, ELECT, HEAT SHRINK			
1	15	*	1010952-002	——		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	14	*	1010770-1	——		CONTACT, CRIMP TYPE #22 (PIN)			
1	13	*	1010929-117	——		CONNECTOR, PLUG, ELECT. (P1)			
2	12	*	1011625-11	74455151011		SCREW, CAP HEX SOC HD SELF-LOCKING			
1	11		2012694	56386910670		BRACKET, CABLE COIL			
1	10	*	1012551-001			CABLE, TEFLON, MULTICONDUCTOR, 600V (24" LG)			
2	9	*	1006273-2	——		SCREW, CAP, BUTTON HD, HEX SOC			
1	8		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	7	*	1012548	——		THERMOSTAT, FIXED TEMP			
1	6	*	1012550-003	——		HEATER PAD, EYEPIECE HOUSING			
1	5		MS16535-338	——		RIVET, TUBULAR, OVAL HEAD			
4	4	*	1010618-1	——		SCREW, BUTTON HD, SELF-LOCKING, SOC HEX			
2	3		2012634	56386910610		SPRING, FLAT			
2	2		2012635	57386911660		PLUNGER			
1	1		2012685	52386911030		HOUSING, MIRROR (SEXTANT EYEPIECE)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911710
DRAWN E. DRAPALA DATE 2-18-65
CHECKED P. G. [illegible] 10/13/65
APPROVAL [illegible]
APPROVAL E. [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

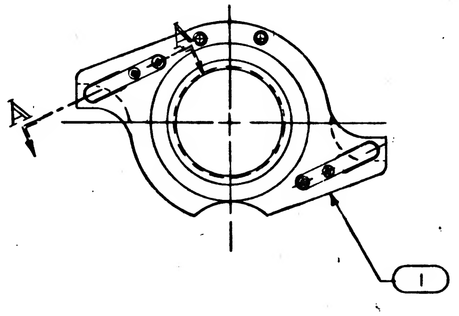
TITLE
MIRROR HOUSING AND
HEATER, ASSY OF
(SXT)

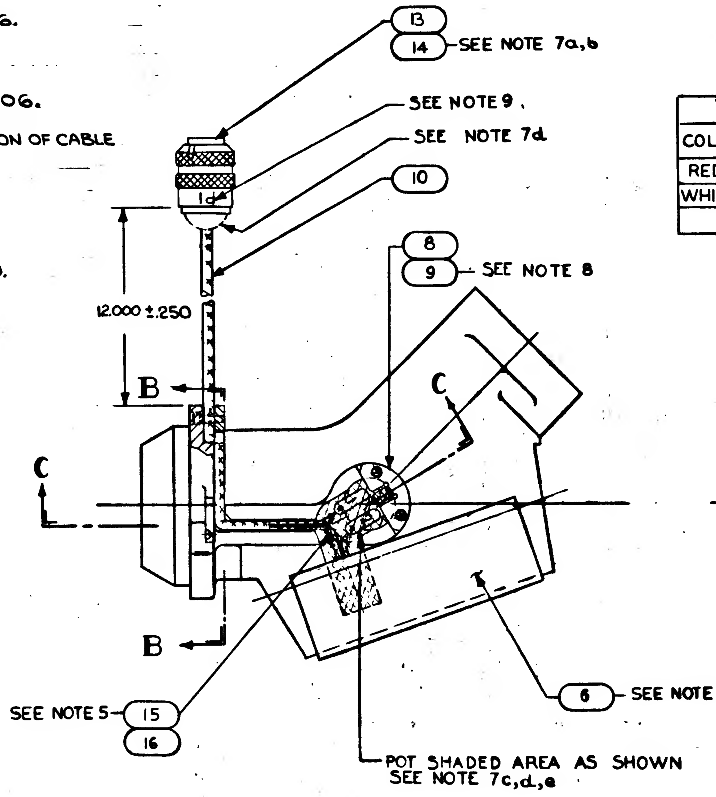
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012695
SCALE 1/1 & 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012695 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26293		
B		REVISED PER TDRR 27189		

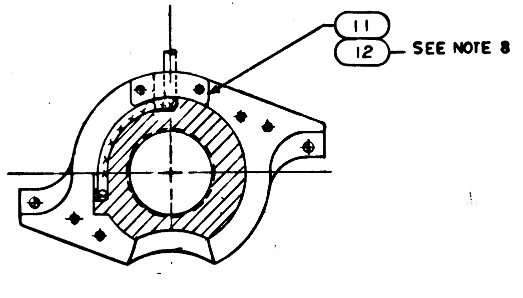
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. ITEM ⑤ TO BE INSTALLED (SWAGED) PRIOR TO ASSEMBLY OF OTHER ITEMS.
3. CEMENT ITEM ⑥ TO ITEM ① ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
4. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
5. a) PLACE ITEM ⑯ OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM ⑮, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM ⑯ OVER SPLICE AND LEADS AND SHRINK.
6. PERFORM CONTINUITY CHECK.
7. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM ⑭, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER THERMOSTAT FOR A MINIMUM OF .045.
8. VIBRATION PROOF SCREWS (ITEM ⑨ AND ⑫) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
9. MARK REFERENCE DESIGNATION .125 ± .015 HIGH IN ACCORDANCE WITH ND1002019.
10. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)



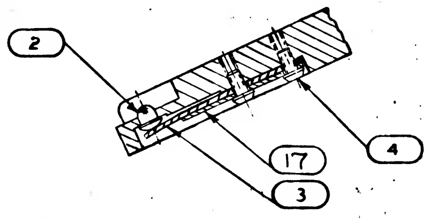


WIRING LEGEND

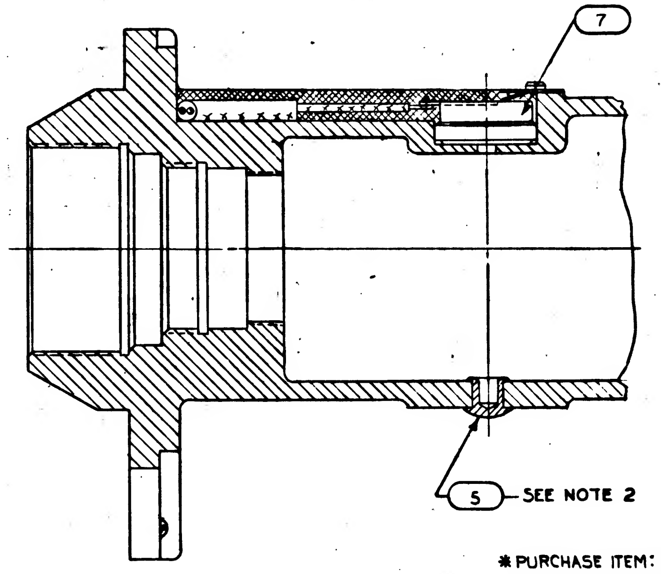
COLOR	ITEM NO.	FROM	INTERIM PT	TO	REF
RED	10	P1-4	———	ITEM 7-1	SEE NOTES 7b & 4
WHITE	10	P1-7	SPLICE	ITEM 6-BLK	SEE NOTES 7b & 5
		ITEM 7-2	———	ITEM 6-RED	SEE NOTE 4



SECTION B-B



SECTION A-A
SCALE 2/1



SECTION C-C
SCALE 2/1

*PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	17		2012745	56386910680		SPRING, FLAT			
1	16	*	1010490-080	———		INSULATION-SLEEVING, ELECT, HEAT SHRINK			
1	15	*	1010952-002	———		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	14	*	1010770-1	———		CONTACT, CRIMP TYPE #22 (PIN)			
1	13	*	1010929-117	———		CONNECTOR, PLUG, ELECT. (P1)			
2	12	*	1011625-11	74455151011		SCREW, CAP HEX SOC HD SELF-LOCKING			
1	11		2012694	56386910670		BRACKET, CABLE COIL			
1	10	*	1012551-001			CABLE, TEFLON, MULTICONDUCTOR, 600V (24" LG)			
2	9	*	1006273-2	———		SCREW, CAP, BUTTON HD., HEX SOC			
1	8		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	7	*	1012548	———		THERMOSTAT, FIXED TEMP			
1	6	*	1012550-003	———		HEATER PAD, EYEPIECE HOUSING			
1	5		MS16535-338	———		RIVET, TUBULAR, OVAL HEAD			
4	4	*	1010618-1	———		SCREW, BUTTON HD, SELF-LOCKING, SOC HEX			
2	3		2012634	56386910610		SPRING, FLAT			
2	2		2012635	57386911660		PLUNGER			
1	1		2012685	52386911030		HOUSING, MIRROR (SEXTANT EYEPIECE)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911710
DRAWN F. DRAPALA DATE 9-15-65
CHECKED P.G. Lame 10/13/65
APPROVAL
APPROVAL E. Vhoug 10/14/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
MIRROR HOUSING AND
HEATER, ASSY OF
(SXT)

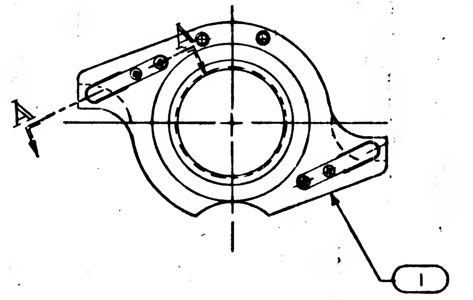
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012695
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

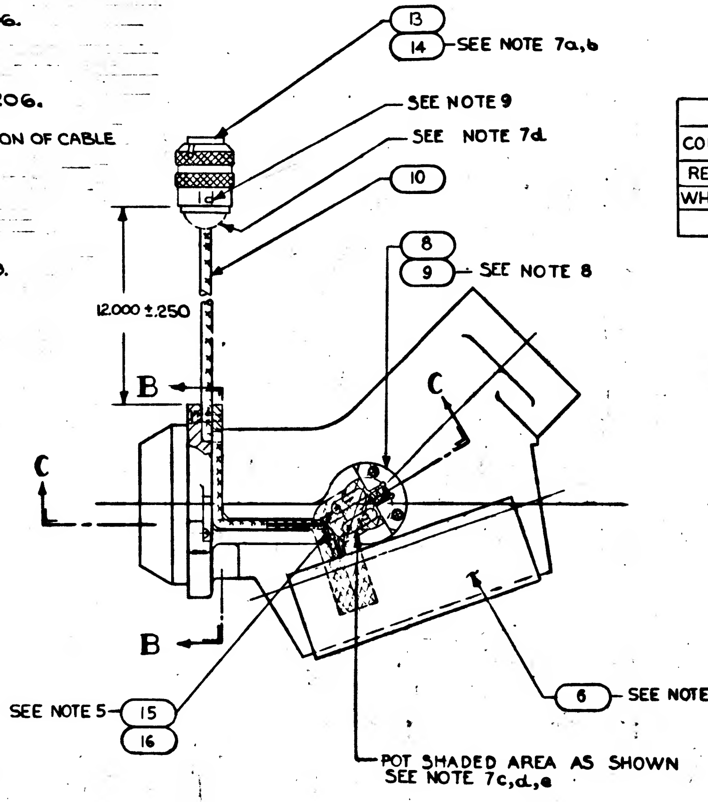
2012695	C

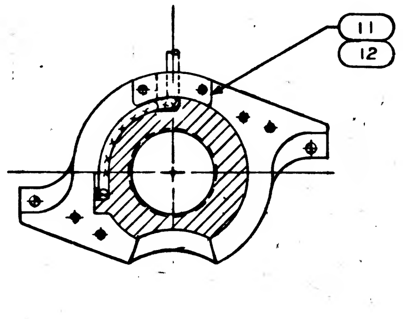
REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26293	2/28/66	WK
Ⓜ B		REVISED PER TDRR 27189	3/22/66	WK
C		REVISED PER TDRR 28205	4/27/66	WK

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. ITEM ⑤ TO BE INSTALLED (SWAGED) PRIOR TO ASSEMBLY OF OTHER ITEMS.
3. CEMENT ITEM ⑥ TO ITEM ① ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
4. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
5. a) PLACE ITEM ⑯ OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM ⑮, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM ⑯ OVER SPLICE AND LEADS AND SHRINK.
6. PERFORM CONTINUITY CHECK.
7. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM ⑭, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER THERMOSTAT FOR A MINIMUM OF .045.
8. VIBRATION PROOF SCREWS (ITEM ⑨) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
9. MARK REFERENCE DESIGNATION .125 ±.015 HIGH IN ACCORDANCE WITH ND1002019.
10. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

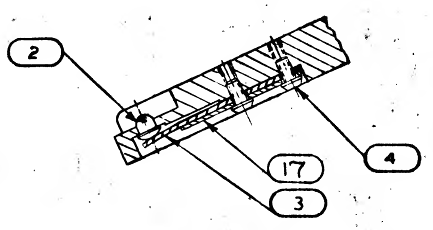
WIRING LEGEND					
COLOR	ITEM NO.	FROM	INTERIM PT	TO	REF
RED	10	P1-4	———	ITEM 7-1	SEE NOTES 7b & 4
WHITE	10	P1-7	SPLICE	ITEM 6-BLK	SEE NOTES 7b & 5
		ITEM 7-2	———	ITEM 6-RED	SEE NOTE 4



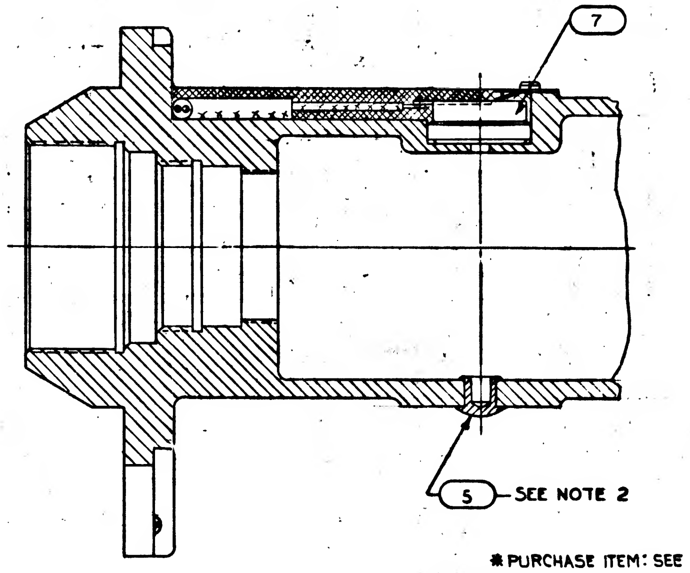




SECTION B-B



SECTION A-A
SCALE 2/1



SECTION C-C
SCALE 2/1

*PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	17		2012745	56386910680		SPRING, FLAT			
1	16	*	1010490-080	———		INSULATION-SLEEVING, ELECT, HEAT SHRINK			
1	15	*	1010952-002	———		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	14	*	1010770-1	———		CONTACT, CRIMP TYPE #22 (PIN)			
1	13	*	1010929-117	———		CONNECTOR, PLUG, ELECT. (P1)			
2	12	*	1011625-11	74455151011		SCREW, CAP HEX SOC HD SELF-LOCKING			
1	11		2012694	56386910670		BRACKET, CABLE COIL			
1	10	*	1012551-001			CABLE, TEFLON, MULTICONDUCTOR, 600V (24" LG)			
2	9	*	1006273-2	———		SCREW, CAP, BUTTON HD., HEX SOC			
1	8		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	7	*	1012548	———		THERMOSTAT, FIXED TEMP			
1	6	*	1012550-003	———		HEATER PAD, EYEPIECE HOUSING			
1	5		MS16535-338	———		RIVET, TUBULAR, OVAL HEAD			
4	4	*	1010618-1	———		SCREW, BUTTON HD, SELF-LOCKING, SOC HEX			
2	3		2012634	56386910610		SPRING, FLAT			
2	2		2012635	57386911660		PLUNGER			
1	1		2012685	52386911030		HOUSING, MIRROR (SEXTANT EYEPIECE)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911710
DRAWN F. DRAPALA DATE 9-15-65
CHECKED P. G. Lemme 10/13/65
APPROVAL G. [illegible] 10/14/65
APPROVAL E. Mowry 10/18/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL W. Kupfer 10/20/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
MIRROR HOUSING AND
HEATER, ASSY OF
(SXT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012695
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

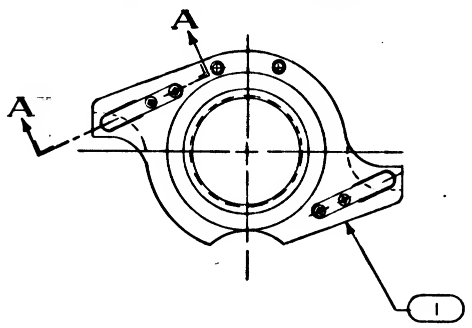
2012695 C

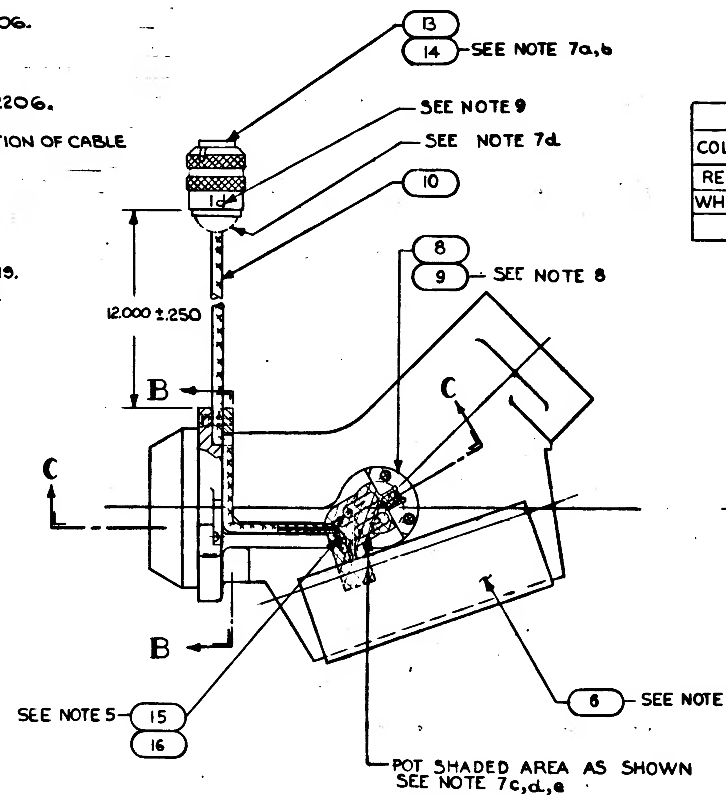
2012695

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

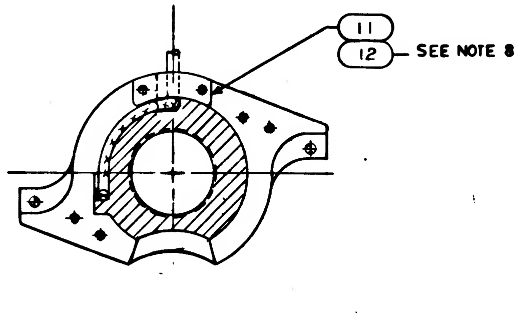
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. ITEM ⑤ TO BE INSTALLED (SWAGED) PRIOR TO ASSEMBLY OF OTHER ITEMS.
3. CEMENT ITEM ⑥ TO ITEM ① ALL AROUND IN ACCORDANCE WITH ND1002004, TYPE VII.
4. SOLDER CONDUCTORS TO TERMINALS IN ACCORDANCE WITH ND1002032.
5. a) PLACE ITEM ⑯ OVER LEADS.
   b) CRIMP CONDUCTOR SPLICE, ITEM ⑮, IN ACCORDANCE WITH ND1002206.
   c) PLACE ITEM ⑯ OVER SPLICE AND LEADS AND SHRINK.
6. PERFORM CONTINUITY CHECK.
7. a) REMOVE RETAINER NUT FROM CONNECTOR PRIOR TO POTTING.
   b) INSTALL CRIMP STYLE PINS, ITEM ⑭, IN ACCORDANCE WITH ND1002206.
   c) POT IN ACCORDANCE WITH ND1002240, METHOD A OR METHOD B.
   d) POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .125. PORTION OF CABLE TO BE POTTED SHALL HAVE EXTERNAL SURFACE OF JACKET ETCHED IN ACCORDANCE WITH ND1002146.
   e) POTTING SHALL COVER THERMOSTAT FOR A MINIMUM OF .045.
8. VIBRATION PROOF SCREWS (ITEM ⑨ AND ⑫) USING GRADE "H" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
9. MARK REFERENCE DESIGNATION .125 ± .015 HIGH IN ACCORDANCE WITH ND1002019.
10. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING)

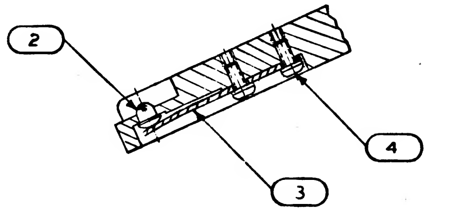




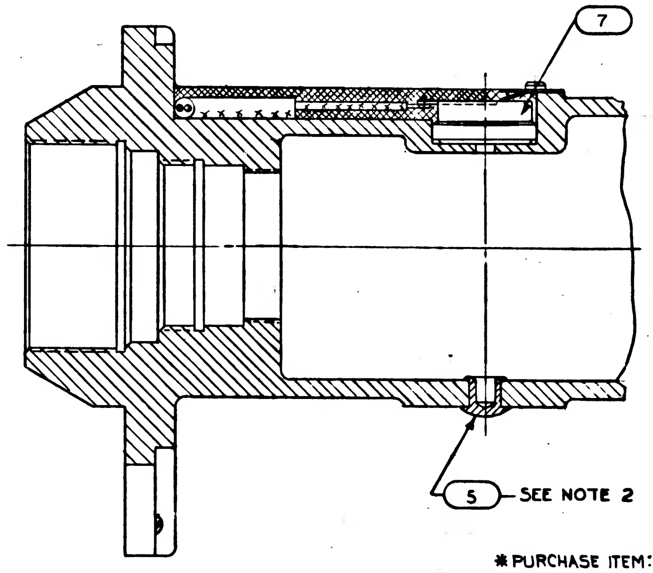
WIRING LEGEND					
COLOR	ITEM NO.	FROM	INTERIM PT	TO	REF
RED	10	P1-4	———	ITEM 7-1	SEE NOTES 7b & 4
WHITE	10	P1-7	SPLICE	ITEM 6-BLK	SEE NOTES 7b & 5
		ITEM 7-2	———	ITEM 6-RED	SEE NOTE 4



SECTION B-B



SECTION A-A
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	16	*	1010490-080	———		INSULATION-SLEEVING, ELECT, HEAT SHRINK			
1	15	*	1010952-002	———		SPLICE, CONDUCTOR (BUTT, UNINSULATED)			
7	14	*	1010770-1	———		CONTACT, CRIMP TYPE #22 (PIN)			
1	13	*	1010929-117	———		CONNECTOR, PLUG, ELECT. (P1)			
2	12	*	1011625-11	7445515011		SCREW, CAP HEX SOC HD SELF-LOCKING			
1	11		2012694	56386910670		BRACKET, CABLE COIL			
1	10	*	1012551-001			CABLE, TEFLON, MULTICONDUCTOR, 600V (24" LG)			
2	9	*	1006273-2	———		SCREW, CAP, BUTTON HD., HEX SOC			
1	8		2012678	56386910660		PLATE, THERMOSTAT RETAINING			
1	7	*	1012548	———		THERMOSTAT, FIXED TEMP			
1	6	*	1012550-003	———		HEATER PAD, EYEPIECE HOUSING			
1	5		MS16535-338	———		RIVET, TUBULAR, OVAL HEAD			
4	4	*	1010618-1	———		SCREW, BUTTON HD, SELF-LOCKING, SOC HEX			
2	3		2012634	56386910610		SPRING, FLAT			
2	2		2012635	57386911660		PLUNGER			
1	1		2012685	52386911030		HOUSING, MIRROR (SEXTANT EYEPIECE)			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911710
DRAWN F. DRAPALA DATE 9-15-65
CHECKED P. G. Lema 10/13/65
APPROVAL 10/14/65
APPROVAL E. Thorup 10/18/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
MIRROR HOUSING AND
HEATER, ASSY OF
(SXT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012695
SCALE 1/1 X 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

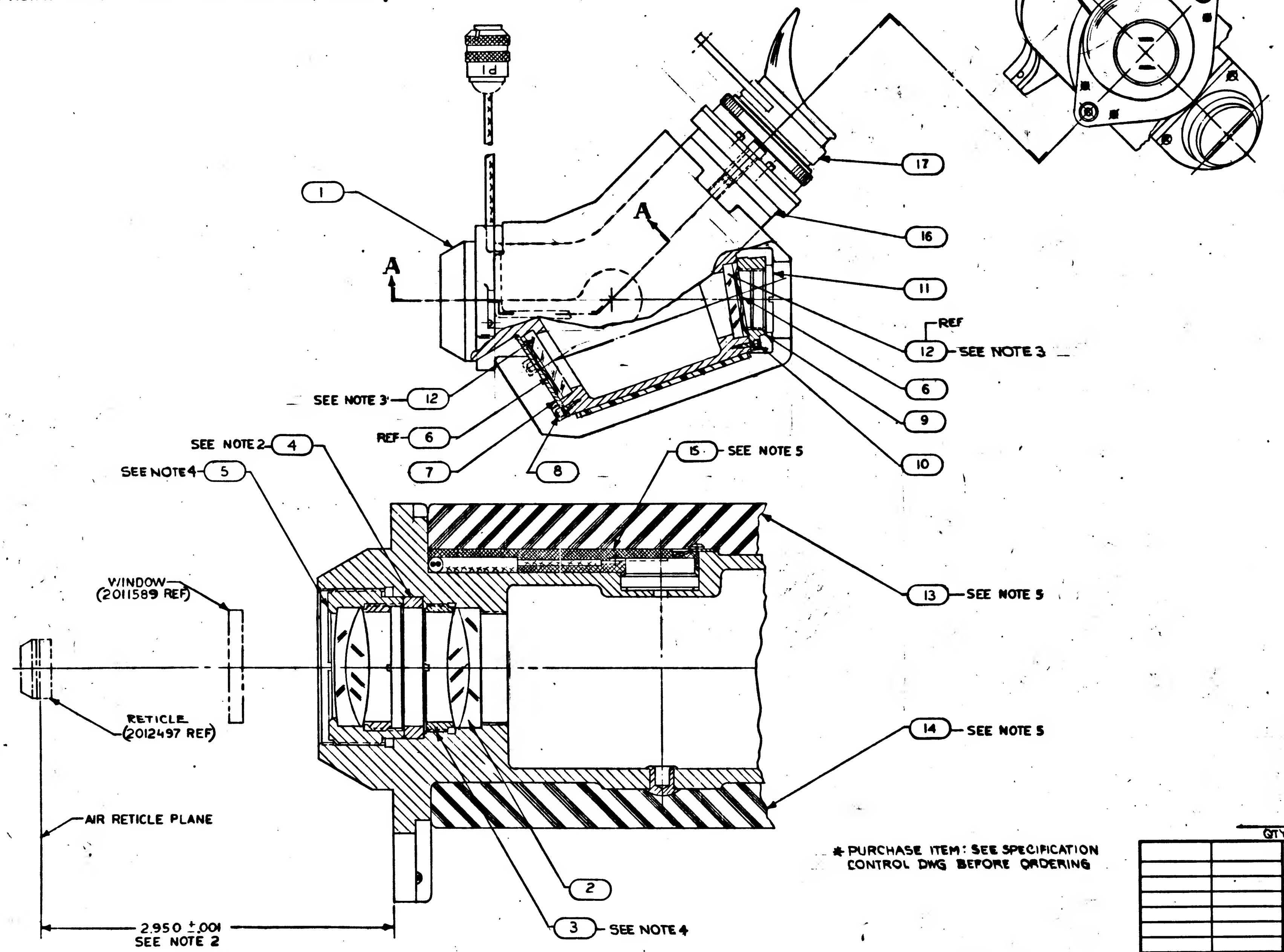
A 2012699

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26291	2/23/66	WK

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. WITH NORMAL EYERELIEF EYEPIECE IN PLACE, SET AT MIDRANGE POSITION AND AIR FOCUSING SPACER IN PLACE, MACHINE ITEM 4 (DWG NO. 2011665) SO THAT AIR RETICLE IS IN FOCUS AT −1.0 ±.015 DIOPTERS WHEN WINDOW AND RETICLE ARE AS SHOWN. SAME WINDOW AND RETICLE SHALL BE USED FOR FOCUSING ALL ASSEMBLIES TO INSURE INTERCHANGEABILITY.
3. ITEMS 12 TO BE MOUNTED WITH THE REFLECTIVE SURFACES FACED INWARD
4. VIBRATION PROOF, USING LOCKING COMPOUND, GRADE "HV" MIL-S-22473 TO 1/3 OF LAST THREAD TO ENTER MOUNTING HOLE PER ND1002211.
5. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 13 & 14) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSEMBLY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 13 & 14) WITH ADHESIVE (ITEM 15) AND ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING).



* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

PARTIAL SECTION A-A
SCALE 2/1

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	17		2012700	85386911730		SEXTANT EYEPIECE ASSEMBLY			
1	16		2012689	45386910140		SPACER, AIR FOCUSING (SXT)			
AR	15	*	1010838	———		ADHESIVE PRESSURE SENSITIVE SILICONE			
1	14		2012687	26386910630		INSULATION, THERMAL SXT MIRROR HSG			
1	13		2012688	26386910640		INSULATION, THERMAL SXT MIRROR HSG			
2	12		2012162	28386910520		MIRROR			
1	11		2012124	57386911070		PLUG			
3	10		NAS1352C02LL4	74455157006		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	9		2012195	52386910670		PLATE, COVER, MIRROR			
3	8		NAS1352C02LL3	74455157005		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	7		2011680	52386910680		PLATE, COVER, MIRROR			
2	6		2011685	56386910470		WASHER, WAVE			
1	5		2011794	85386910840		HOLDER AND LENS, ASSY OF			
1	4		2011665	57386910970		RING, SPACER			
1	3		2011667	57386910980		RING, LOCKING			
1	2		2011781	76386910120		LENS, ASSY OF			
1	1		2012695	85386911720		MIRROR HOUSING AND HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911720

DRAWN EDRAFALA DATE 9-21-65
CHECKED P. G. Lame 9/22/65
APPROVAL 10/4/65
APPROVAL 10/5/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SXT MIRROR HOUSING
AND EYEPIECE ASSY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012699
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

APOLLO G&N Specification
PS 2012699
Original Issue Date:
Release Authority: TDRR 29286
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT MIRROR HOUSING AND AIR FOCUSING SHIM ASSEMBLY

DRAWING NO. 2012699

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/17/66	A	29674	5	MGM	PP7-65-612

This specification consists of page 1 to 7 inclusive.

APPROVALS	C. METZGER NASA/MSC	Saltzman 5/26/66 Ect 5/31/66 6-1-66 6-1-66 MIT/IL	KIC 5-26-66

3.1.3.3 Luminous Transmittance. The measured transmission for SLOS and LLOS of a certified system consisting of an Optical Unit Assembly (P/N 2011000) and SXT Eyepiece Assembly (P/N 2012700) with a mounted certified SXT Mirror Housing and Air Focusing Shim Assembly (P/N 2012699) shall be accomplished using a CIE standard illuminant "C". With the certified SXT Mirror Housing and Air Focusing Shim Assembly (P/N 2012699) replaced by the SXT Mirror Housing and Air Focusing Shim Assembly (P/N 2012699) to be tested, the measured transmissions shall be within 10% of the readings taken for the certified system.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2012699 and all drawings and engineering data referenced thereon.

4. QUALITY ASSURANCE

4.1 GENERAL. The Contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein.

4.1.1 Nonconformance. The failure of an end product to pass any examination or test of this section will automatically classify the unit as nonconforming. When nonconforming units are corrected by the Contractor, the unit shall be reinspected. When corrective action has been taken, the reinspection of a nonconforming unit may be limited to the test or examination which defined the nonconformance or, when so directed by the cognizant inspector, a complete re-examination and retest of the unit may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the Contractor to the cognizant NASA representative.

4.1.2 Test Conditions.

4.1.2.1 Environmental. Unless otherwise specified the assembly shall be tested under the following ambient conditions:

Temperature: 25 ± 10°C

Relative Humidity: 90% maximum

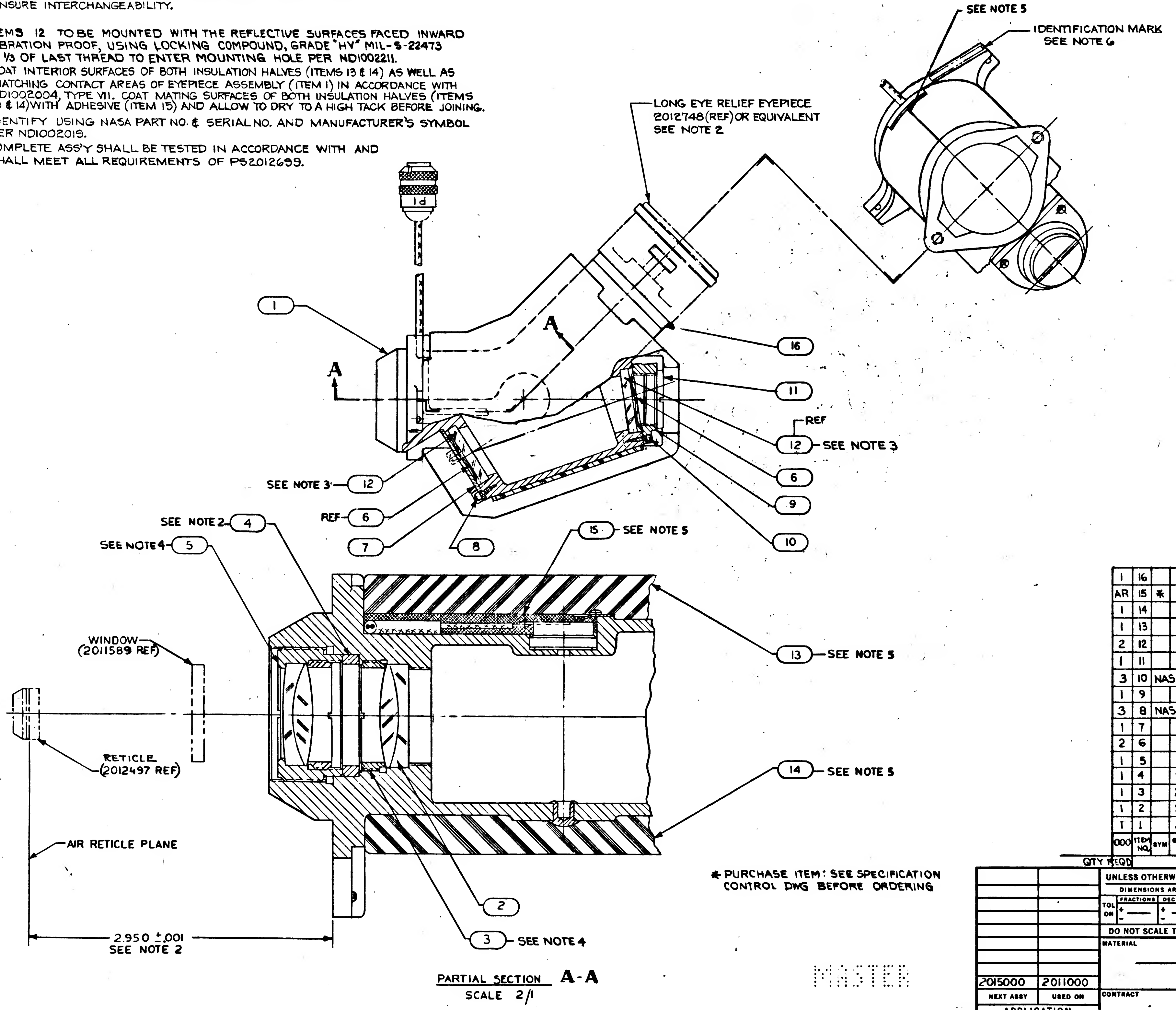
Barometric Pressure: 28 to 32 inches Hg

B	2012699

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 23362				
A		REVISED PER TDRR 26291	2/23/66	WK
B		REVISED PER TDRR 29299	6-7-66	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. WITH LONG EYERELIEF EYEPIECE OR EQUIVALENT IN PLACE, MACHINE ITEM 4 SO THAT AIR RETICLE IS IN FOCUS AT -1.00 ± 0.15 DIOPTERS WHEN WINDOW AND RETICLE ARE AS SHOWN. SAME WINDOW AND RETICLE SHALL BE USED FOR FOCUSING ALL ASSEMBLIES TO ENSURE INTERCHANGEABILITY.
3. ITEMS 12 TO BE MOUNTED WITH THE REFLECTIVE SURFACES FACED INWARD
4. VIBRATION PROOF, USING LOCKING COMPOUND, GRADE "HV" MIL-S-22473 TO 1/3 OF LAST THREAD TO ENTER MOUNTING HOLE PER ND1002211.
5. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 13 & 14) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSEMBLY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 13 & 14) WITH ADHESIVE (ITEM 15) AND ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
6. IDENTIFY USING NASA PART NO. & SERIAL NO. AND MANUFACTURER'S SYMBOL PER ND1002019.
7. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2012699.



PARTIAL SECTION A-A
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	16		2012689	45386910140		SPACER, AIR FOCUSING (SXT)			
AR	15	*	1010838	———		ADHESIVE PRESSURE SENSITIVE SILICONE			
1	14		2012687	26386910630		INSULATION, THERMAL SXT MIRROR HSG			
1	13		2012688	26386910640		INSULATION, THERMAL SXT MIRROR HSG			
2	12		2012162	28386910520		MIRROR			
1	11		2012124	57386911070		PLUG			
3	10		NAS1352C02LL4	74455157006		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	9		2012195	52386910670		PLATE, COVER, MIRROR			
3	8		NAS1352C02LL3	74455157005		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	7		2011680	52386910680		PLATE, COVER, MIRROR			
2	6		2011685	56386910470		WASHER, WAVE			
1	5		2011794	85386910840		HOLDER AND LENS, ASSY OF			
1	4		2011665	57386910970		RING, SPACER			
1	3		2011667	57386910980		RING, LOCKING			
1	2		2011781	76386910120		LENS, ASSY OF			
1	1		2012695	85386911720		MIRROR HOUSING AND HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911720

DRAWN EDRAPALA DATE 9-21-65
CHECKED P. G. Lomo 9/22/65
APPROVAL 10/4/65
APPROVAL 10/6/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

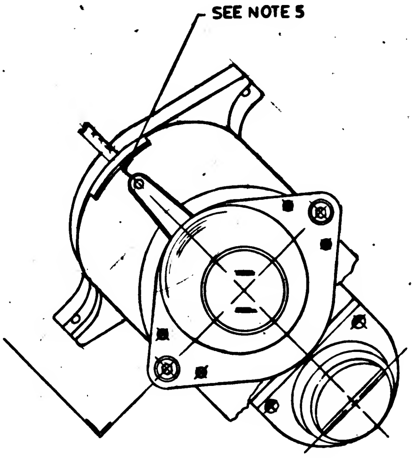
TITLE
SXT MIRROR HOUSING
AND AIR FOCUSSING SHIM
ASSEMBLY

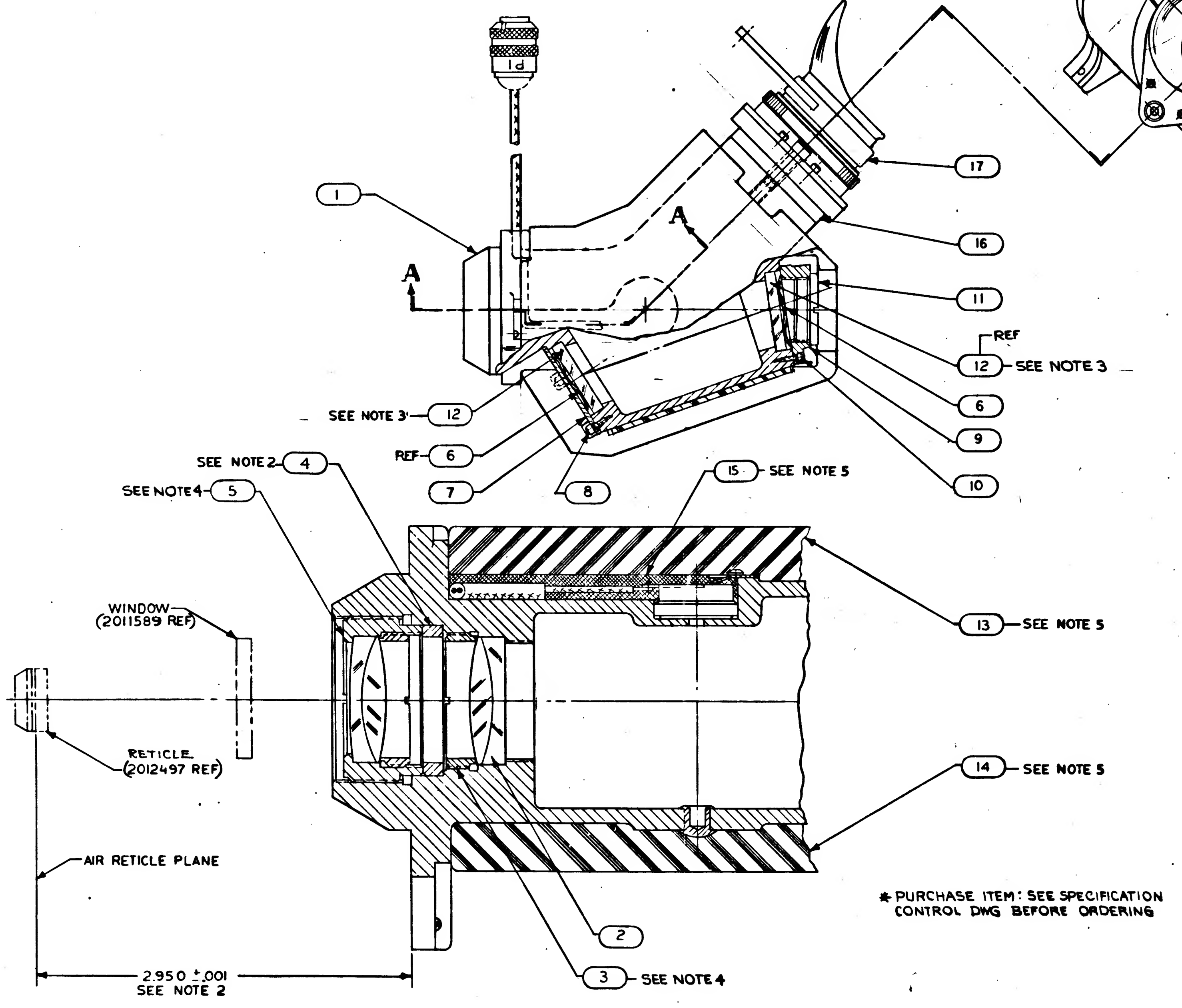
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012699
SCALE 1/1 & 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012699

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. WITH NORMAL EYERELIEF EYEPIECE IN PLACE, SET AT MIDRANGE POSITION AND AIR FOCUSING SPACER IN PLACE, MACHINE ITEM 4 (DWG NO. 2011665) SO THAT AIR RETICLE IS IN FOCUS AT −1.0±.015 DIOPTERS WHEN WINDOW AND RETICLE ARE AS SHOWN. SAME WINDOW AND RETICLE SHALL BE USED FOR FOCUSING ALL ASSEMBLIES TO INSURE INTERCHANGEABILITY.
3. ITEMS 12 TO BE MOUNTED WITH THE REFLECTIVE SURFACES FACED INWARD
4. VIBRATION PROOF, USING LOCKING COMPOUND, GRADE "HV" MIL-S-22473 TO 1/3 OF LAST THREAD TO ENTER MOUNTING HOLE PER ND1002211
5. COAT MATING SURFACES AND INTERIOR SURFACES OF BOTH INSULATIONS, (ITEMS 13 AND 14) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSY (ITEM 1) WITH ADHESIVE (ITEM 15) BEFORE ASSEMBLY. ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING).

REVISIONS TORR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL





PARTIAL SECTION **A-A**
SCALE 2/1

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

MASTER

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	17		2012700	85386911730		SEXTANT EYEPIECE ASSEMBLY			
1	16		2012689	45386910140		SPACER, AIR FOCUSING (SXT)			
AR	15	*	1010838	———		ADHESIVE PRESSURE SENSITIVE SILICONE			
1	14		2012687	26386910630		INSULATION, THERMAL SXT MIRROR HSG			
1	13		2012688	26386910640		INSULATION, THERMAL SXT MIRROR HSG			
2	12		2012162	28386910520		MIRROR			
1	11		2012124	57386911070		PLUG			
3	10	NAS1352C02LL4		74455157006		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	9		2012195	52386910670		PLATE, COVER, MIRROR			
3	8	NAS1352C02LL3		74455157005		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	7		2011680	52386910680		PLATE, COVER, MIRROR			
2	6		2011685	56386910470		WASHER, WAVE			
1	5		2011794	85386910840		HOLDER AND LENS, ASSY OF			
1	4		2011665	57386910970		RING, SPACER			
1	3		2011667	57386910980		RING, LOCKING			
1	2		2011781	76386910120		LENS, ASSY OF			
1	1		2012695	85386911720		MIRROR HOUSING AND HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± — ; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911720

DRAWN EDRAPALA DATE 9-21-65
CHECKED P. A. Leone 9/22/65
APPROVAL 10/4/65
APPROVAL 10/5/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

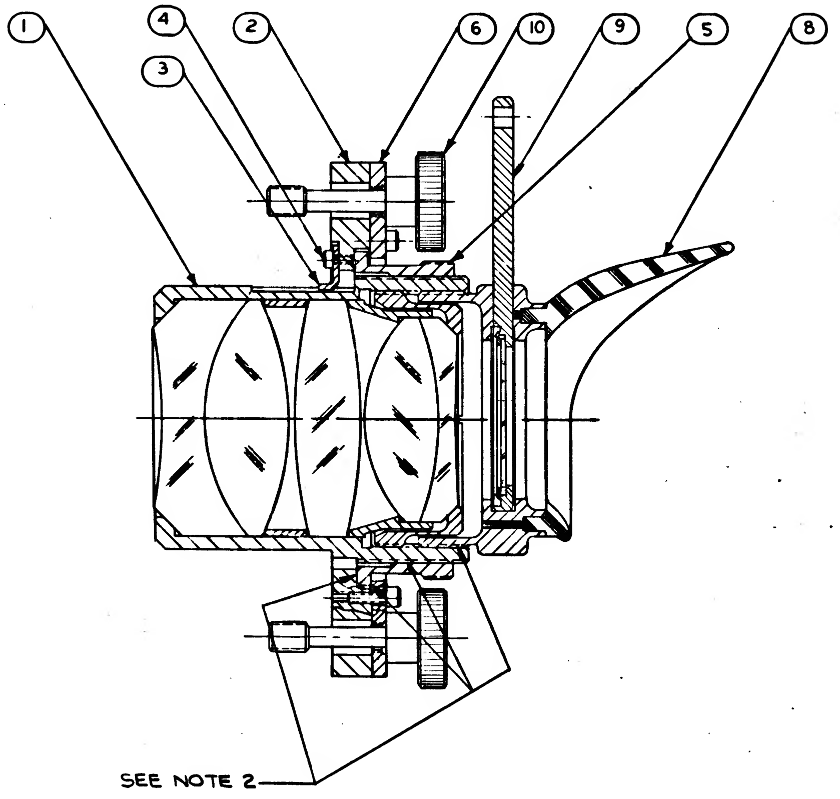
TITLE
SXT MIRROR HOUSING AND EYEPIECE ASSY

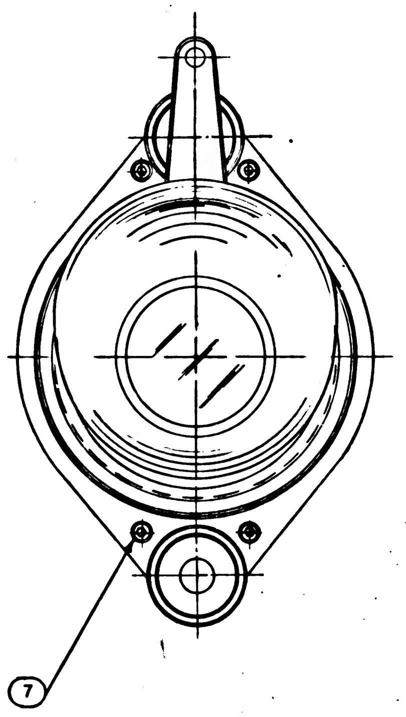
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012699
SCALE 1/1 & 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

2012700 A

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28087	7/21/66	

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. APPLY DRY LUBRICANT POWDER (MIL-M-7866) TO SURFACES INDICATED BY RUBBING ON WITH CLOTH OR CHAMOIS. REMOVE ALL LOOSE RESIDUE.
3. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND 1002018 (TAGGING)





MASTER

QTY REQD 000	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	10		2012749	45386910260		SCREW, CAPTIVE KNURLED HEAD			
1	9		2012407-000	85386911120		HOLDER & FILTER, ASSY OF (SXT EYEPIECE)			
1	8		2012609-000	85386911380		SXT EYEGUARD ASSEMBLY			
4	7	NAS	1352C02LL4	74455157006		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	6		2011874	52386910720		RETAINER, ADJUSTMENT NUT			
1	5		2011881	57386911000		RING, ADJUSTING			
2	4	NAS	1352C01LL2	74455157001		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	3		2011882	52386910710		KEY			
1	2		2011880	52386910700		PLATE, MOUNTING			
1	1		2011793-000	85386910850		HOUSING AND LENS, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911730
DRAWN DATE 9-24-65
CHECKED 9-26-65
APPROVAL 10/18/65
APPROVAL E. Thorup 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT EYEPIECE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012700
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

APOLLO G&N Specification
PS 2012700
Original Issue Date:
Release Authority: TDRR 29287
Class A **Release**

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT EYEPIECE ASSEMBLY

DRAWING NO. 2012700

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/17/66	A	29675	3	MGM	PP7-65-61

This specification consists of page 1 to 5 inclusive.

APPROVALS	A. C. METZGER **NASA/MSC**	ECT 5/31/66 6-1-66 6-1-66 **MIT/IL**	5-26-66 **KIC**

Copies of specifications, standards, drawings bulletins and publications required by supplier in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer.

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT/IL APOLLO Configuration Management Office of the conflict as soon as it is determined.

The contract

This specification

Documents listed in this section

3 REQUIREMENTS

3.1 PERFORMANCE. The assembly shall meet the requirements of this section.

3.1.1 Optical.

3.1.1.1 Eyepiece Focus. The assembly shall have a minimum focus range of from -2 to +2 diopters.

3.1.1.2 Resolving Power. With the SXT Eyepiece Assembly mounted in a certified system comprising the Optical Unit Assembly (PN 2011000) and an SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699), the system shall meet the resolution requirements specified in paragraphs 3.1.1.3.1 and 3.1.1.2.2. Resolution shall be determined with the eyepiece adjusted for optimum focus at the center of the target field, using either high contrast or low contrast targets as defined in MIL-STD-150, Photographic Lenses, paragraphs 5.1.1.7.1 and 5.1.1.7.3.

3.1.1.2.1 LLOS resolution shall be 10.3 arc seconds or better using a high contrast target. LLOS resolution shall be 14.4 arc seconds or better using a low contrast target.

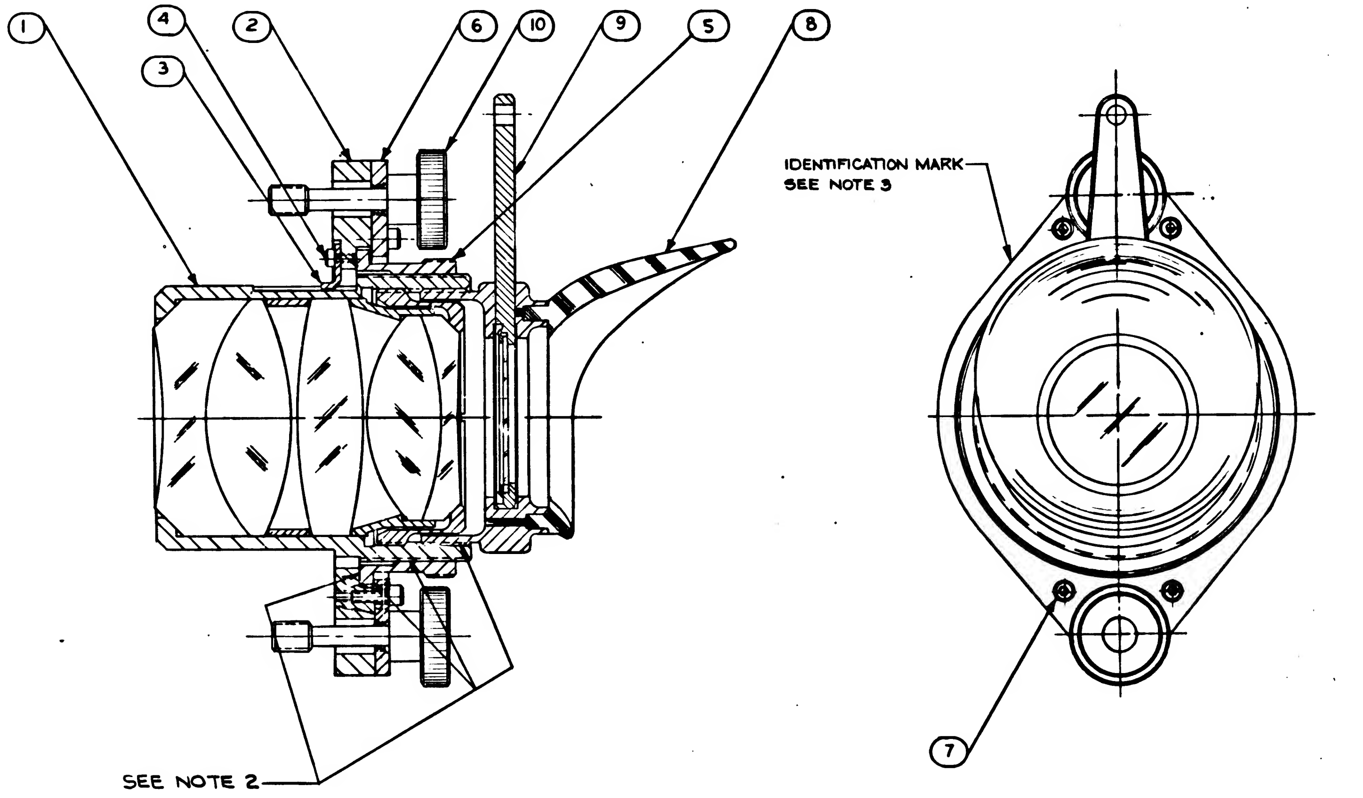
3.1.1.2.2 SLOS resolution shall be 7.2 arc seconds or better using a high contrast target. SLOS resolution shall be 9.1 arc seconds using a low contrast target.

3.1.1.3 Luminous Transmittance. The measured transmission for SLOS and LLOS of a certified system consisting of an Optical Unit Assembly (PN 2011000) and SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699) with a mounted certified SXT Eyepiece Assembly (PN 2012700) shall be accomplished using a CIE standard illuminant "C". With the certified SXT Eyepiece Assembly (PN 2012700) replaced by the SXT Eyepiece Assembly (PN 2012700) to be tested, and the assembly polaroid filter removed, the measured transmissions shall be within 10% of the readings taken for the certified system.

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. APPLY DRY LUBRICANT POWDER (MIL-M-7866) TO SURFACES INDICATED BY RUBBING ON WITH CLOTH OR CHAMOIS. REMOVE ALL LOOSE RESIDUE.
3. IDENTIFY USING NASA PART NO. & SERIAL NO. AND MANUFACTURER'S SYMBOL PER ND1002019.
4. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF, PS2012700.

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28087	4/21/66	wk
B		REVISED PER TDRR 29296	6-7-66	



000 (QTY REQD)	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	10		2012749	45386910260		SCREW, CAPTIVE KNURLED HEAD			
1	9		2012407-000	85386911120		HOLDER & FILTER, ASSY OF (SXT EYEPIECE)			
1	8		2012609-000	85386911380		SXT EYEGUARD ASSEMBLY			
4	7	NAS	1352C02LL4	74455157006		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	6		2011874	52386910720		RETAINER, ADJUSTMENT NUT			
1	5		2011881	57386911000		RING, ADJUSTING			
2	4	NAS	1352C01LL2	74455157001		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	3		2011882	52386910710		KEY			
1	2		2011880	52386910700		PLATE, MOUNTING			
1	1		2011793-000	85386910850		HOUSING AND LENS, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

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DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911730
DRAWN DATE 9-24-65
CHECKED P. A. Lyons 9-26-65
APPROVAL 10/14/65
APPROVAL E. Thoruy 10/14/65
NASA APPROVAL A. C. METCER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT EYEPIECE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012700
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

APOLLO G&N Specification
PS 2012700
Original Issue Date:
Release Authority: TDRR 29287
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT EYEPIECE ASSEMBLY

DRAWING NO. 2012700

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/17/66	A	29675	3	MGM	PP7-65-61
9/9/66	B	30840	3	S. A.	N/A

This specification consists of page 1 to 5 inclusive.

APPROVALS	A. C. METZGER	ECT 5/31/66	6-1-66	6/66	5-26-66
	NASA/MSC	MIT/IL			KIC

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This specification

Documents listed in this section

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3.1.1 Optical.

3.1.1.1 Eyepiece Focus. The assembly shall have a minimum focus range of from -2 to +2 diopters.

3.1.1.2 Resolving Power. With the SXT Eyepiece Assembly mounted in a certified system comprising the Optical Unit Assembly (PN 2011000) and an SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699), the system shall meet the resolution requirements specified in paragraphs 3.1.1.3.1 and 3.1.1.2.2. Resolution shall be determined with the eyepiece adjusted for optimum focus at the center of the target field, using either high contrast or low contrast targets as defined in MIL-STD-150, Photographic Lenses, paragraphs 5.1.1.7.1 and 5.1.1.7.3.

3.1.1.2.1 LLOS resolution shall be 10.3 arc seconds or better using a high contrast target. LLOS resolution shall be 14.4 arc seconds or better using a low contrast target.

3.1.1.2.2 SLOS resolution shall be 7.2 arc seconds or better using a high contrast target. SLOS resolution shall be 9.1 arc seconds using a low contrast target.

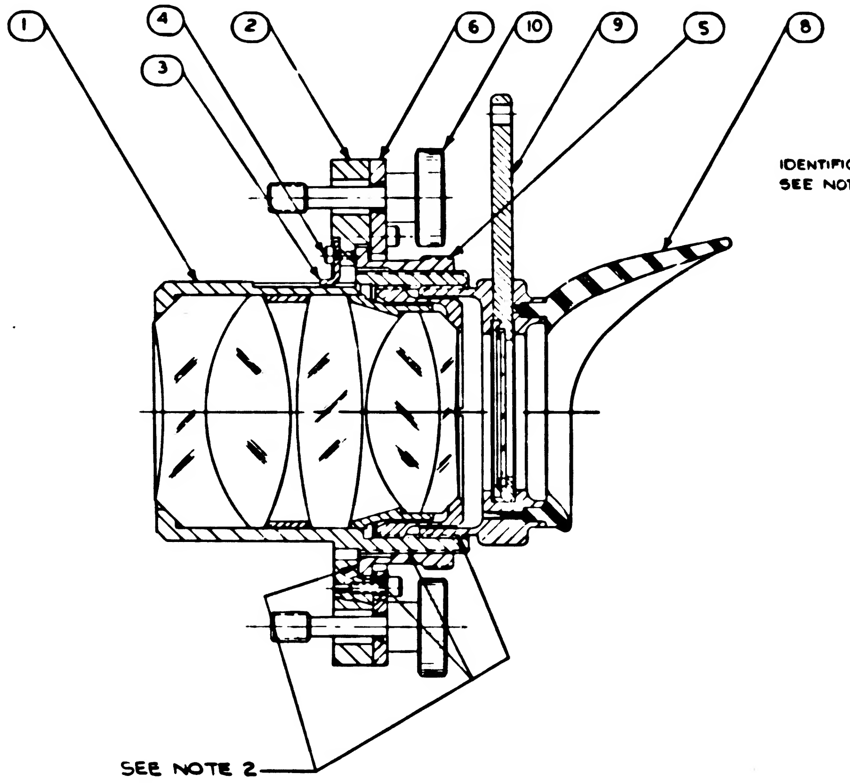
3.1.1.3 Luminous Transmittance. The measured transmission for SLOS and LLOS of a certified system consisting of an Optical Unit Assembly (PN 2011000) and SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699) with a mounted certified SXT Eyepiece Assembly (PN 2012700) shall be accomplished using a CIE standard illuminant "C". With the certified SXT Eyepiece Assembly (PN 2012700) replaced by the SXT Eyepiece Assembly (PN 2012700) to be tested, and the assembly polaroid filter removed, the measured transmissions shall not be less than 90% of the readings taken for the certified system.

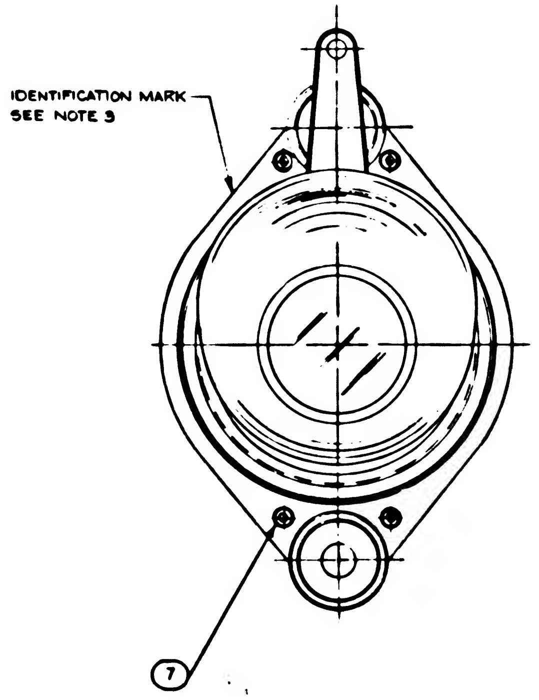
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. APPLY DRY LUBRICANT POWDER (MIL-M-7866) TO SURFACES INDICATED BY RUBBING ON WITH CLOTH OR CHAMOIS. REMOVE ALL LOOSE RESIDUE.
3. IDENTIFY USING NASA PART NO. & SERIAL NO AND MANUFACTURER'S SYMBOL PER ND1002019.
4. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF, PS2012700.

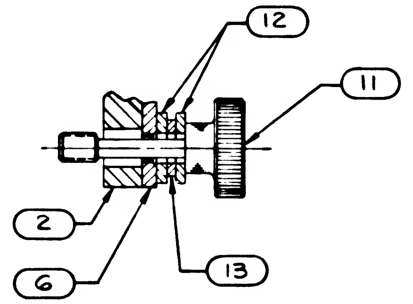
2012700 C

REVISIONS TDRR 23366

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28087	7/21/66	
B		REVISED PER TDRR 29296	6-7-66	
C		REVISED PER TDRR 364[illegible]	[illegible]	







FOR -011 AND SUBSEQUENT CONFIGURATIONS

-011	-000	ITEM NO	SYM	GOVERNMENT/NASA NO	HOLLOMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	0	13		MS35338-81			LOCKWASHER			
4	0	12		AN960-C10L			FLAT WASHER (LIGHT SERIES)			
2	0	11		2012749-001			SCREW, CAPTIVE, KNURLED HEAD			
0	2	10		2012749-000			SCREW, CAPTIVE KNURLED HEAD			
1	1	9		2012407-000	85386911120		HOLDER & FILTER, ASSY OF (SXT EYEPIECE)			
1	1	8		2012609-000	85386911380		SXT EYEGUARD ASSEMBLY			
4	4	7		NAS 1352C02LL4	74455157006		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	1	6		2011874	52386910720		RETAINER, ADJUSTMENT NUT			
1	1	5		2011881	57386911000		RING, ADJUSTING			
2	2	4		NAS 1352C01LL2	74455157001		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	1	3		2011882	52386910710		KEY			
1	1	2		2011880	52386910700		PLATE, MOUNTING			
1	1	1		2011793-000	85386910850		HOUSING AND LENS, ASSY OF			

QTY REQD

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

HOLLOMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
EIC PN 85386911730

DRAWN DATE 9-24-65
CHECKED 9-26-65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT EYEPIECE ASSEMBLY

CODE IDENT NO 80230
SIZE D
NASA NUMBER 2012700
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

APOLLO G&N Specification
PS 2012700
Original Issue Date:
Release Authority: TDRR 29287
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT EYEPIECE ASSEMBLY

DRAWING NO. 2012700

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/17/66	A	29675	3	MGM	PP7-65-61
9/9/66	B	30840	3	S.A.	N/A
/27/68	C	38407	2	M.M.	N/A

This specification consists of page 1 to 5 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	ECT 5/31/66 6-1-66 6/66 MIT/IL	5-26-66 KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SXT Eyepiece Assembly, Part No. 2012700-000 ~~and~~ 2012700-011.

1.1 PRODUCT CONFIGURATION BASELINE ACCEPTANCES. The product configuration baseline shall be established by F.A.C.I. of the end item Serial No. This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

Standards

Military

MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

Drawings

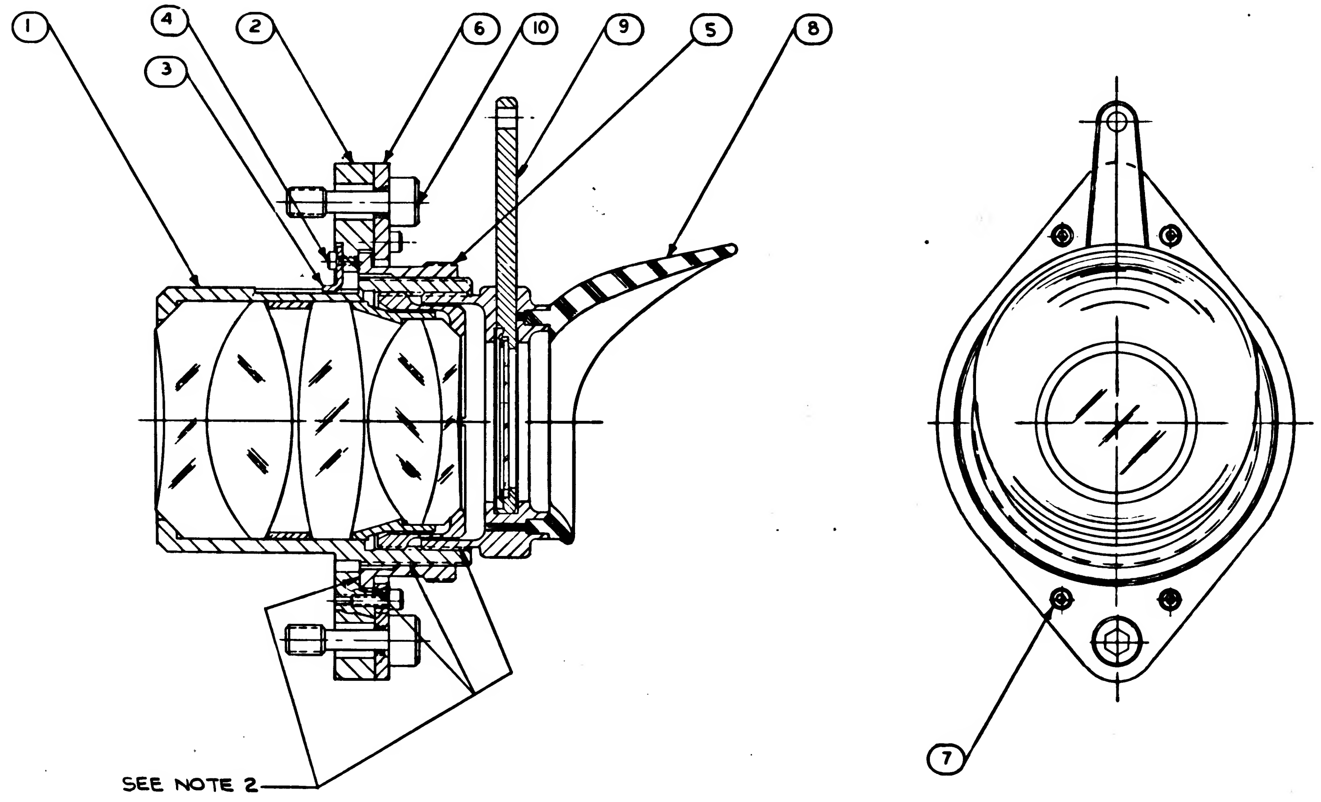
APOLLO G&N

2012700	Sextant Eyepiece Assembly
2012690	SXT Mirror Housing and Air Focusing Shim Assembly
2011000	Optical Unit Assembly

2012700

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. APPLY DRY LUBRICANT POWDER (MIL-M-7866) TO SURFACES INDICATED BY RUBBING ON WITH CLOTH OR CHAMOIS. REMOVE ALL LOOSE RESIDUE.
3. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND 1002018 (TAGGING)



SEE NOTE 2

QTY REQD	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	10		2012729	48386910090		SCREW, CAPTIVE HEX SOCKET HEAD			
1	9		2012407-000	85386911120		HOLDER & FILTER, ASSY OF (SXT EYEPIECE)			
1	8		2012609-000	85386911380		SXT EYEGUARD ASSEMBLY			
4	7	NAS	1352C02LL4	74455157006		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	6		2011874	52386910720		RETAINER, ADJUSTMENT NUT			
1	5		2011881	57386911000		RING, ADJUSTING			
2	4	NAS	1352C01LL2	74455157001		SCREW, CAP, SOCKET HEAD-SELF LOCKING			
1	3		2011882	52386910710		KEY			
1	2		2011880	52386910700		PLATE, MOUNTING			
1	1		2011793-000	85386910850		HOUSING AND LENS, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012699	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911730

DRAWN [illegible] DATE 9-24-65
CHECKED P. A. [illegible] 9-26-65
APPROVAL [illegible] 10/1/65
APPROVAL E. Thorup 10/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT EYEPIECE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012700
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

MASTER

APOLLO G&N Specification
PS 2012700
Original Issue Date:
Release Authority: TDRR 29287
Class Release

PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
SXT EYEPIECE ASSEMBLY
DRAWING NO. 2012700

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 5 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Saltzman 5/26/66 ECT 5/31/66 J. J. Sitaco 6-1-66 6-1-66 MIT/IL	5-26-66 KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SXT Eyepiece Assembly, Part No. 2012700-000 .

1.1 PRODUCT CONFIGURATION BASELINE ACCEPTANCES. The product configuration baseline shall be established by F. A. C. I. of the end item Serial No. This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

A. APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

Standards

Military

MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

Drawings

APOLLO G&N

2012700	Sextant Eyepiece Assembly
2012699	SXT Mirror Housing and Air Focusing Shim Assembly
2011000	Optical Unit Assembly

Copies of specifications, standards, drawings bulletins and publications required by supplier in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer.

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT/IL APOLLO Configuration Management Office of the conflict as soon as it is determined.

The contract

This specification

Documents listed in this section

3 REQUIREMENTS

3.1 PERFORMANCE. The assembly shall meet the requirements of this section.

3.1.1 Optical.

3.1.1.1 Eyepiece Focus. The assembly shall have a minimum focus range of from -2 to +2 diopters.

3.1.1.2 Resolving Power. With the SXT Eyepiece Assembly mounted in a certified system comprising the Optical Unit Assembly (PN 2011000) and an SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699), the system shall meet the resolution requirements specified in paragraphs 3.1.1.2.1 and 3.1.1.2.2. Resolution shall be determined with the eyepiece adjusted for optimum focus at the center of the target field, using either high contrast or low contrast targets as defined in MIL-STD-150A, Photographic Lenses, paragraphs 5.1,1.7.1 and 5.1.1.7.3.

3.1.1.2.1 LLOS resolution shall be 10.3 arc seconds or better using a high contrast target. LLOS resolution shall be 14.4 arc seconds or better using a low contrast target.

3.1.1.2.2. SLOS resolution shall be 7.2 arc seconds or better using a high contrast target. SLOS resolution shall be 9.1 arc seconds using a low contrast target.

3.1.1.3 Luminous Transmittance. The measured transmission for SLOS and LLOS of a certified system consisting of an Optical Unit Assembly (PN 2011000) and SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012699) with a mounted certified SXT Eyepiece Assembly (PN 2012700) shall be accomplished using a CIE standard illuminant "C". With the certified SXT Eyepiece Assembly (PN 2012700) replaced by the SXT Eyepiece Assembly (PN 2012700) to be tested, the measured transmissions shall be within 10% of the readings taken for the certified system. Transmission shall not be less than 25% for SLOS nor less than 3.2% for LLOS when checked against a CIE standard illuminant "C". and the polaroid filter removed from the assembly.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2012700 and all drawings referenced thereon.

4. QUALITY ASSURANCE

4.1 GENERAL. The Contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein.

4.1.1 Nonconformance. The failure of an end product to pass any examination or test of this section will automatically classify the unit as nonconforming. When nonconforming units are corrected by the Contractor, the unit shall be reinspected. When corrective action has been taken, the reinspection of a nonconforming unit may be limited to the test or examination which defined the nonconformance or, when so directed by the cognizant inspector, a complete reexamination and retest of the unit may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the Contractor to the cognizant NASA representative.

4.1.2 Test Conditions.

4.1.2.1 Environmental. Unless otherwise specified, the assemblies shall be tested under the following ambient conditions:

Temperature: 25 ± 10°C

Relative Humidity: 90% Maximum

Barometric Pressure: 28 to 32 inches of Hg

4.2 TESTS/VERIFICATIONS.

4.2.1 Drawing Compliance. The assembly shall be visually inspected for compliance to the requirements of APOLLO G&N Drawing 2012700. Particular attention should be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of markings.

4.2.2 Tests. The tests required by this section shall be performed with the Sextant Eyepiece Assembly mounted in a certified system comprising an Optical Unit Assembly (P/N 2011000) and a SXT Mirror Housing and Air Focusing Shim Assembly (PN 2012669).

4.2.2.1 Eyepiece Focus. Using the test configuration of paragraph 4.2.2, verify that the SXT Eyepiece Assembly focus range meets the requirements specified in paragraph 3.1.1.1.

4.2.2.2 Resolving Power. Using the test configuration of paragraph 4.2.2, verify that the SXT Eyepiece Assembly meets the resolution requirements specified in paragraph 3.1.1.2.

4.2.2.3 Luminous Transmittance. Using the test configuration of paragraph 4.2.2, verify that the system luminous transmittance, with the SXT Eyepiece Assembly installed, meets the requirements specified in paragraph 3.1.1.3.

5. PREPARATION FOR DELIVERY

Preparation for delivery shall be in accordance with Specification NS 1002214.

6. NOTES

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a) $\sqrt{}^{63}$ FINISH ALL OVER
   b) BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT (STABILIZE AND STRESS RELIEVE) PER ND1002114.
6. SURFACES "X", "Y" AND "Z" TO BE TEFLON COATED TO DIMENSIONS SHOWN.
7. FINISH: BLACK ANODIZE PER ND1002127 TYPE I AFTER TEFLON COATING. IN ACCORDANCE WITH ND 1002067 TYPE I.
8. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

SLOT DATA

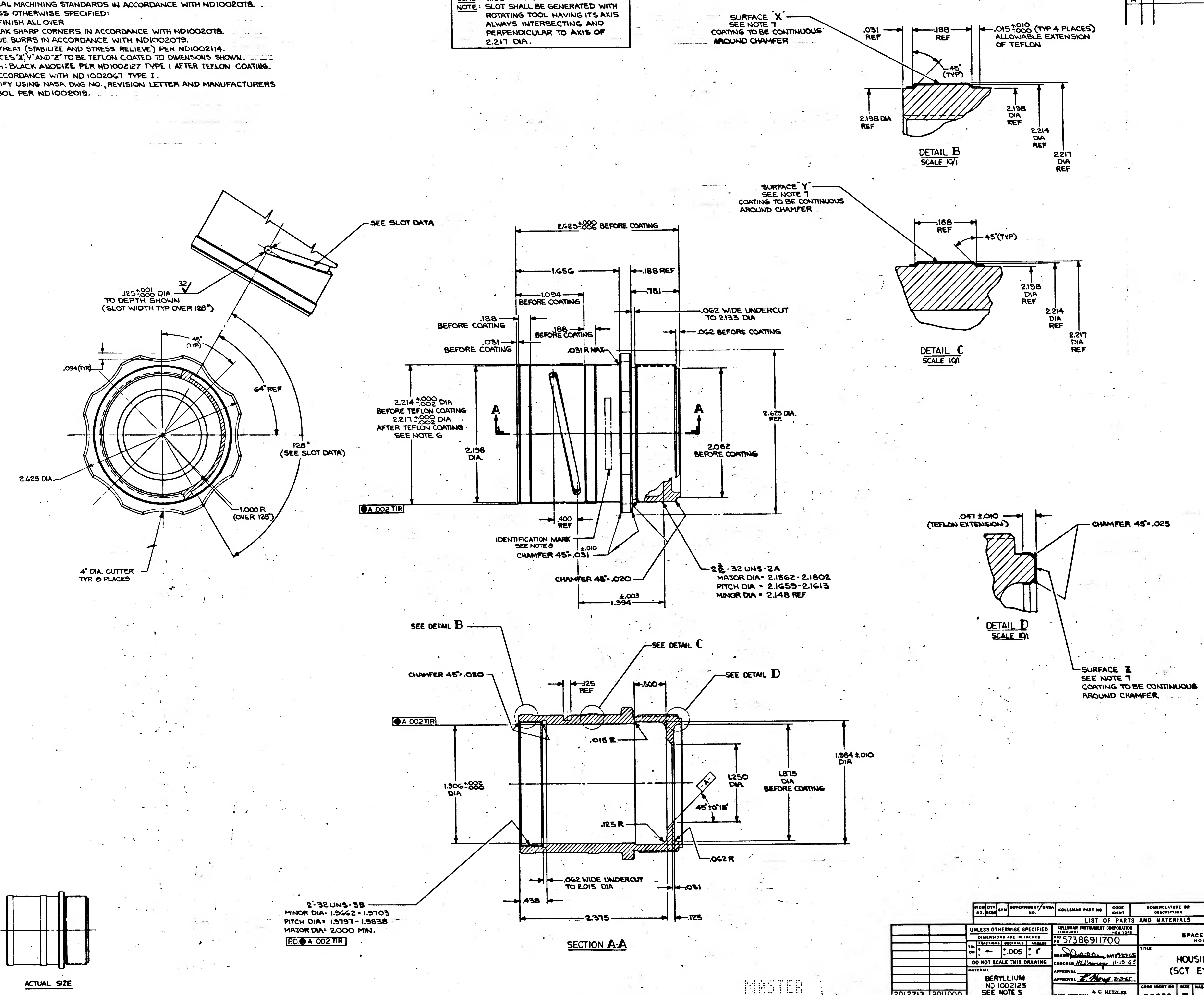
LEAD = 1.125 INCHES PER TURN

NOTE: SLOT SHALL BE GENERATED WITH ROTATING TOOL HAVING ITS AXIS ALWAYS INTERSECTING AND PERPENDICULAR TO AXIS OF 2.217 DIA.

2012708 A

REVISIONS 24743

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28576	[illegible]	[illegible]



MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012713	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
BERYLLIUM
ND 1002125
SEE NOTE 5

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 57386911700
DRAWN [illegible] DATE [illegible]
CHECKED H.E. [illegible] 11-19-65
APPROVAL
APPROVAL [illegible] 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LENS
(SCT EYEPIECE)

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012708
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1